Hydrology Study

For

MILTON MONTESSORI

BETHANY BEND
Milton, GA 30004

Prepared for:
Milton Montessori
3505 Bethany Bend
Milton, GA 30004

Prepared by:

LOWE
ENGINEERS

990 Hammond Drive, Suite 900
Atlanta, GA 30328

June, 2024

TABLE OF CONTENTS

TABLES

EXHIBITS

APPENDICES

SECTION 1: EXECUTIVE SUMMARY

Lowe Engineers prepared this hydrological study on behalf of Milton Montessori for the proposed development of the Milton Montessori project. The project proposes developing a Montessori School adjacent to an existing Montessori School. this development will include a new driveway, sidewalk, and parking area with internal connection to the existing adjacent Montessori School Facility. New utility service connections will be made for the development and new underground stormwater detention will be installed to provide storage for the additional stormwater runoff created by the new development.

The Milton Montessori project proposes to develop the ±5.02-acre property known as tax parcels No. 21 547009720240 & 21 547009720158, located at 3505 Bethany Bend, Milton, GA 30004; of the 972nd Land Lot, 3rd District in Fulton County. The project location is depicted on the Vicinity Map, Exhibit 1.

SECTION 2: HYDROLOGY

2.1 Objectives

This hydrology study evaluates the existing (pre-development) and proposed (post-development) hydrologic conditions of the site to determine the storm water requirements for the following: *stormwater quality and detention, stream channel protection, overbank flood protection, extreme flood protection and downstream analysis*.

This hydrology study was developed using the federal and state laws which governs the National Pollutant Discharge Elimination System (NPDES), as part of the CFR 40 Clean Water Act, and mandates local authorities to review, permit and enforce all point discharges into waters of the United States such as land disturbing activities in excess of 1-acre. Specifically, this hydrology study was produced using the City of MiltonStormwater Code of Ordinance.

2.2 Model Development SCS Method

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® Version 2020 was used to model the existing and proposed drainage. The model uses the Soil Conservation Service (SCS) TR-55 method for computing design storms and time of concentration (Tc). The following information is necessary to develop the SCS method:

1. Determine curve numbers in the drainage areas representative of the land uses and their hydrologic soil types.
2. Calculate the time of concentration (longest) to the study point.
3. Using Type II rainfall distribution hydrographs, the total and excess rainfall amounts are determined.

2.3 24-Hr Rainfall Amounts

The model uses a standard time series plot generated for an SCS Type II 24-hour rainfall distribution event for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year rainfall depths specific to that geographic location. Rainfall depths for the Milton Montessori project were obtained from the NOAA Atlas 14 website using Station Experiment, Site ID 09-0456 and area provided in **Appendix 2**. The design precipitation depths are as follows:

SCS 24-HR RAINFALL	PRECIPITATION DEPTH (inches)
1-yr	3.33
2-yr	3.77
5-yr	4.50
10-yr	5.11
25-yr	5.98
50-yr	6.66
100-yr	7.36

Table 1: Rainfall Recurrence Intervals

2.4 Time of Concentration

The time of concentration was determined using the procedures outlined by Section 2.1.4.4 Time of Concentration of the Georgia Stormwater Management Manual. The attached drainage maps in **Exhibits 1-2** indicate the path for the time of concentration for pre- and post- development calculations, and calculations are shown in the Hydrographs section of the Appendices. A minimum time of concentration of 5 minutes was used if calculations are not provided.

2.5 Ground Cover Conditions

HYDROLOGIC SOIL GROUP / CN VALUE REFERENCE				
CATEGORIES	**SOIL GROUP / CN VALUE**			
	A	**B**	**C**	**D**
PERVIOUS				
FOREST: GOOD COVER	30	55	70	77
LAWNS: GOOD	39	61	74	80
IMPERVIOUS				
ASPHALT/CONCRETE	98	98	98	98
NOTE: SOILS FOR THIS SITE ARE ALL GROUP B and D				

The development of the curve number values followed from first analyzing the site. The soil types present on site corresponded with Hydrologic Soil Group B and, in some portion, D in order to develop a composite curve number for use in the modeling. Composite curve number calculations are shown in Table 2.0 and 2.1.

For the purposes of this report, the existing conditions for the site were calculated as wooded areas as though there are no existing buildings on site. In post-developed conditions, the disturbed areas were calculated as a combination of landscaped and impervious areas. The undisturbed areas in the post-development conditions were calculated to remain wooded areas.

For predeveloped conditions, an average curve number of 63 was calculated and 80 for post-developed conditions. See **Appendix 3** for more details.

SECTION 3: EXISTING CONDITIONS

3.1 Overview

The project site currently consists of mostly wooded area with two one-story dilapidated buildings with ascetically fair draining soils in good condition (Hydrologic Soil Group B). The site slopes between 3% to 7% across most of the site from East to West but flattens to 1% to 2% along the West property line before discharging into a stream. The site is located (See **Exhibit 2**, Pre-development Conditions Map) within the Chattahoochee Watershed District and primarily within the Limited Development Area. Ultimately, the property drains South-Eastwardly to Camp Creek which connects to Big Creek.

3.3 On-site Drainage

The on-site drainage sheet flows to the stream at the rear of the property. The ±5.02-acre site drainage basin is shown as Pre Basin-Onsite STP (Study Point) in **Exhibit 3**. The study point used is the lowest point of the stream at the edge of the property line. See summary of the basin characteristics below:

PRE-DEVELOPMENT CHARACTERISTICS	
	PRE-BASIN – ONSITE STP
Basin Area	5.02 acres
Curve Number, CN	63 (Forest: Good Cover)
Time of Concentration, T_C	14.0 min

Table 2: Pre-Development Characteristics

3.3 Peak Flow Summary

See summary below of the pre-developed peak flows of the site basin for the 24-hr rainfall events up to the 100-yr storm. See **Appendix 5** for Hydraflow return period recap and hydrographs.

24-HR STORM EVENT	PRE-BASIN - ONSITE (to study point) (cfs)
1-yr	2.892
2-yr	4.347
5-yr	7.044
10-yr	9.514
25-yr	13.30
50-yr	16.49
100-yr	19.91

Table 3: Pre-Development Peak Flows

SECTION 4: PROPOSED CONDITIONS

4.1 Overview

In the post developed state, stormwater runoff of the ±5.02-acre site will have added the proposed 2.26-acres of impervious area. This included the proposed Montessori building and associated parking and drive aisles. The remaining areas will be considered lawns in good condition for the analysis and any undisturbed area as wooded. Tree plantings will also be added to the 25' rear landscape buffer thus increasing transpiration of the site sheet flow. A detention pond is proposed for stormwater management of the post-development conditions and the new impervious area.

4.2 On-site Drainage

After the proposed drainage and grading of the site are installed, the on-site basin will be split into two sub-basins, Post Basin – Onsite Bypass and Post Basin - Onsite BMP. Onsite Bypass will be the post-developmed area that will flow past the proposed detention system and the Onsite BMP will be the basin that flows to the new underground detention system by way of drainage inlets and underground stormwater conveyances. See summary of basin characteristics below:

POST-DEVELOPMENT CHARACTERISTICS		
	Onsite Bypass	Onsite to BMP
Basin Area	3.43 acres	1.59 acres
Curve Number, CN	64	93
Time of Concentration, T_C	10 mins	5 mins

Table 4: Post-Development Characteristics

4.3 Detention Design

An underground storage system is proposed to detain the addition stormwater runoff produced by the proposed development. A chambered system with an Outlet Control Structure will store a calculated volume of stormwater and release said stormwater over an extended period of time so that the peak discharge of the site is a lover rate than that of the pre-developed conditions. A calculation volume of stormwater will also be retained in the system to infiltrate into the ground and provide runoff reduction.

4.4 Peak Flow Summary

The table below shows the peak flow summary off the post-development basins and routed pond outfall to the study point. Comparing post-development vs. pre-development flow shows that the proposed work will have an outflow less than the existing conditions. See **Appendix 5** for Hydraflow return period recap and hydrographs.

24-HR STORM EVENT	POST-BASIN (to Bypass) (cfs)	POST-BASIN (to BMP) (cfs)	POST-BASIN (Routed) (cfs)	TOTAL POST FLOW (to STP) (cfs)
1-yr	2.576	6.492	0.260	2.816
2-yr	3.764	7.494	0.285	4.027
5-yr	5.948	9.145	0.323	6.245
10-yr	7.936	10.52	0.403	8.260
25-yr	10.96	12.47	1.134	11.55
50-yr	13.45	13.98	2.203	15.25
100-yr	16.13	15.53	3.913	19.63

Table 5: Post-Development Peak Flows

SECTION 5: DOWNSTREAM ANALYSIS (10% ANALYSIS)

Downstream hydrologic analysis was performed using the "Ten-Percent Rule" in the Georgia Stormwater Management Manual as a guide. The purpose of this study is to determine the downstream effects of onsite detention on a basin where the site is approximately 10% of the land area. See **Exhibit 4** "10% Analysis Basin Map" in the Appendices.

The ten percent study point is located downstream of the site in Camp Creek. The basin is approximately 531 acres, and consists of residential and commercial development, and 5.02 acres of the existing property. The ground cover was assumed to have a curve number of 72 due to area calculations using a composite of 55, 77, and 61 CN's. The 10% basin was analyzed with the pre-developed site and the with the post-developed site. The findings (shown below in Table 6 and in **Exhibit 4** of this report) demonstrates that no negative impacts are expected downstream due to the detention of the developed site.

24-HR STORM EVENT	PRE-10% BASIN (cfs)	POST-10% BASIN (cfs)
1-yr	368.12	367.93
2-yr	489.02	488.66
5-yr	704.41	703.76
10-yr	895.06	894.13
25-yr	1178.89	1178.30
50-yr	1407.79	1407.61
100-yr	1649.98	1649.18

Table 6: Pre vs. Post 10% Basin Peak Flows

SECTION 6: OTHER REQUIREMENTS

6.1 Water Quality (Runoff Reduction)

To meet the runoff reduction requirements by the City of Milton Engineering Department, the first 1" of rainfall was detained below the low flow orifice in the detention pond to promote infiltration practices.

The water quality sizing criterion employed for this project specifies that the stormwater runoff volume generated by the first one inch of rainfall shall be retained on-site to help maintain pre-development site hydrology and help protect the local watershed from several indirect impacts of the land development process, including decreased groundwater recharge, decreased baseflow and degraded water quality.

Although runoff reduction requirements are nearly met as an additional measure for this project the use of green infrastructure practices were used to meet water quality standards. These practices included infiltration of stormwater runoff through retention in an open bottom underground storage system and will be constructed and maintained in accordance with the information presented in the latest edition of the Georgia Stormwater Management.

By meeting the runoff reduction requirement by the City of Milton, it is presumed that this stormwater management system complies with the Water Quality Treatment Requirement per criteria in Section 74-513(a) of the Ordinance. Runoff reduction require volume calculations provided in **Appendix 4**.

6.2 Channel Protection

Per the Georgia Stormwater Management Standards, Stream channel protection must be provided due to our downstream discharge entering a channel. Protection of stream channels from bank and bed erosion and degradation shall be provided by using all the following approaches:

1. Preservation, restoration, or reforestation with native vegetation of the applicable stream buffer.
2. Twenty-four-hour extended detention of the one-year, 24-hour return frequency storm event.
3. Erosion prevention measures such as energy dissipation and velocity control.

The first requirement: non-applicable with no stream being on the property.

The second requirement is met due to the following calculations for Channel Protection Volumes shown in **Appendix 3**. The total channel protection volume, CP_V, was calculated to be **11,560 cf** with an orifice sized of **3"**. The provided volume will be **19,133 cf** with an orifice size of **3"** at the **1026.00'** elevation. Therefore, GSWMM channel protection requirements will be met.

SECTION 7: SUMMARY OF ANALYSIS

The proposed stormwater management system has been analyzed in the 2, 10, 25, and 100-year storm events. Runoff Reduction is provided where possible according to the requirements outlined by the City of Milton. The analysis indicates that the proposed stormwater management system has been designed with enough capacity to control stormwater runoff such that the proposed development will not cause adverse impact to life or property, public or private.

SECTION 8: EXHIBITS

EXHIBIT 1: VICINITY MAP
EXHIBIT 2: PRE-DEVELOPMENT BASIN MAP
EXHIBIT 3: POST-DEVELOPMENT BASIN MAP
EXHIBIT 4: 10% ANALYSIS BASIN MAP
EXHIBIT 5: WATER QUALITY MAP
EXHIBIT 6: DETENTION POND AND OCS DETAIL

EXHIBIT 1: VICINITY MAP

PREPARED BY:
LOWE ENGINEERS
990 HAMMOND DRIVE, SUITE 900
ATLANTA, GA 30328
770.857.8400

PREPARED FOR:

VICINITY MAP

MILTON MONTESSORI

BETHANY BEND
MILTON, GA 30004

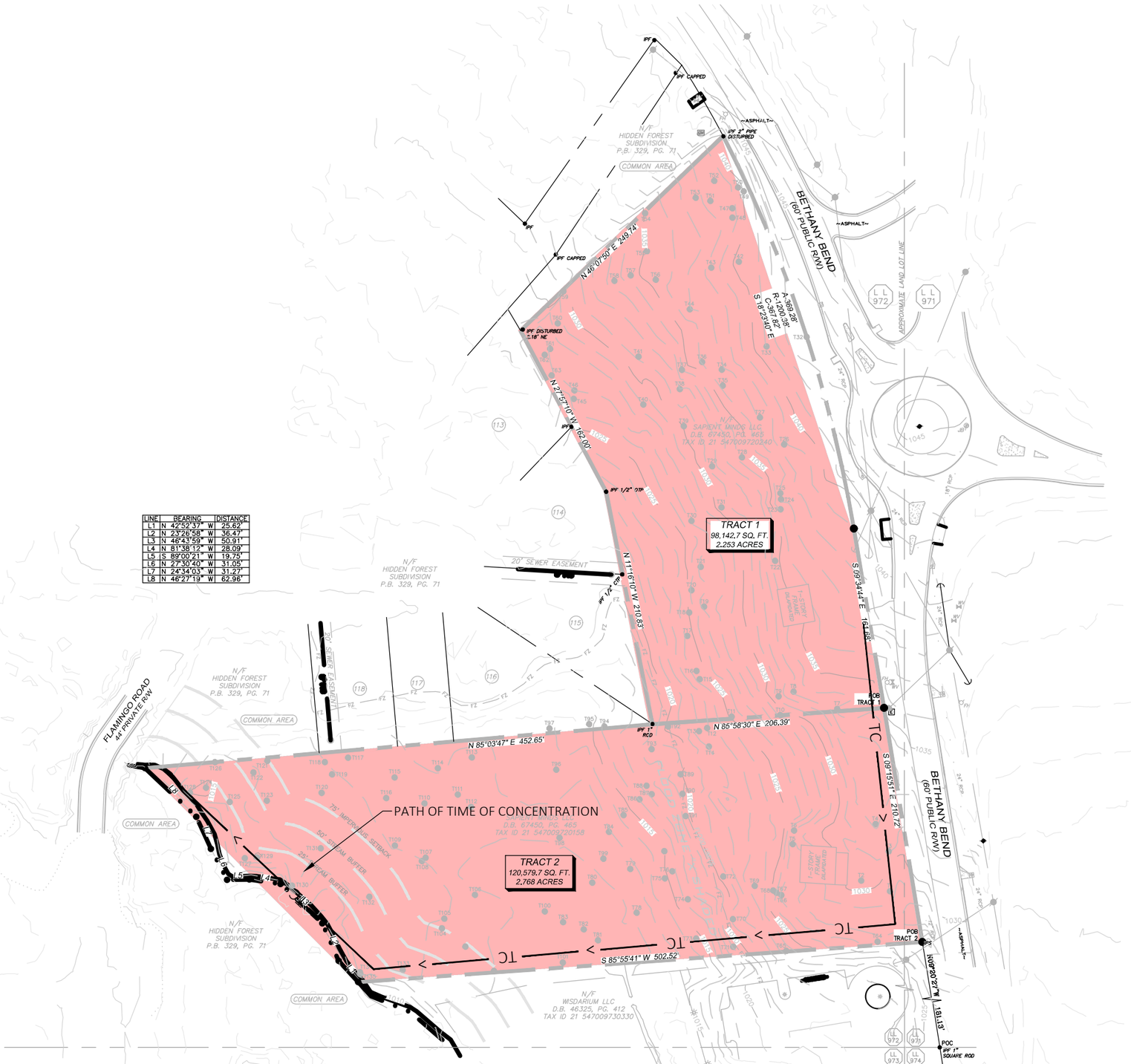
PRELIMINARY
NOT FOR
CONSTRUCTION

SCALE:
0' 150' 300'
1" = 300'

REVISIONS	
NO.	DATE

DATE:	06/05/2024
DRAWN BY:	JK
CHECKED BY:	BA
PROJECT MANAGER:	BILL AGUILAR
PROJECT #:	24-220008
SHEET:	1

EXHIBIT 2: PRE-DEVELOPMENT BASIN MAP



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PRE-DEVELOPED CONDITIONS

MILTON MONTESSORI
BETHANY BEND
MILTON, GA 30004

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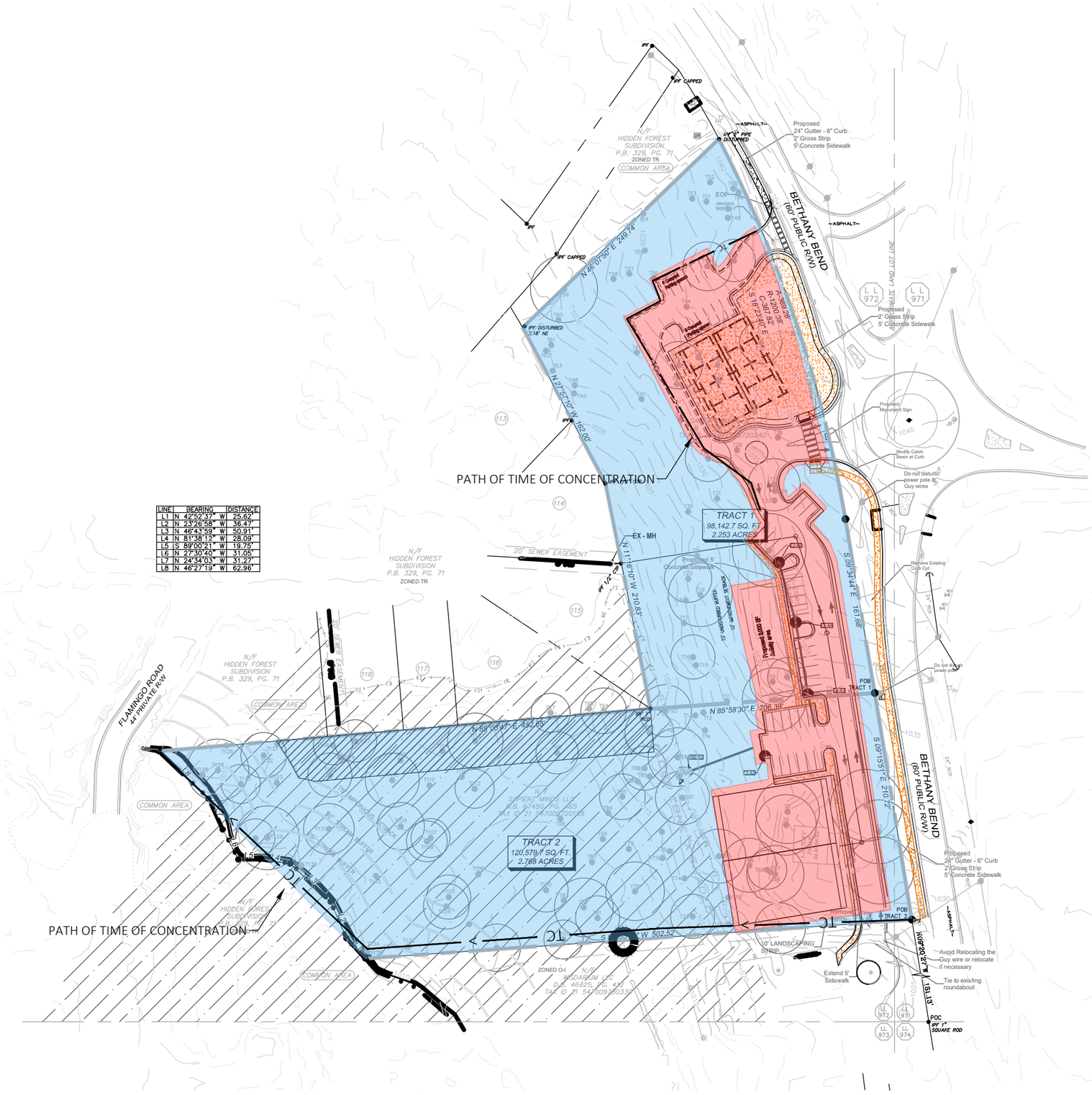
SCALE:

REVISIONS	
NO.	DATE

DATE:	06/05/2024
DRAWN BY:	JK
CHECKED BY:	BA
PROJECT MANAGER:	BILL AGUILAR
PROJECT #:	24-220008
SHEET:	2

EXHIBIT 3: POST-DEVELOPMENT BASIN MAP



LEGEND

POST-BASIN ONSITE (TO BMP)

AREA: 1.59 ACRES
CN: 93
Tc: 5 min

POST-BASIN 1 OFFSITE (TO BYPASS)

AREA: 3.43
CN: 64
Tc: 10 min

TIME OF CONCENTRATION —— TC ——— > ——

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POST-DEVELOPED CONDITIONS

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MILTON, GA 30004

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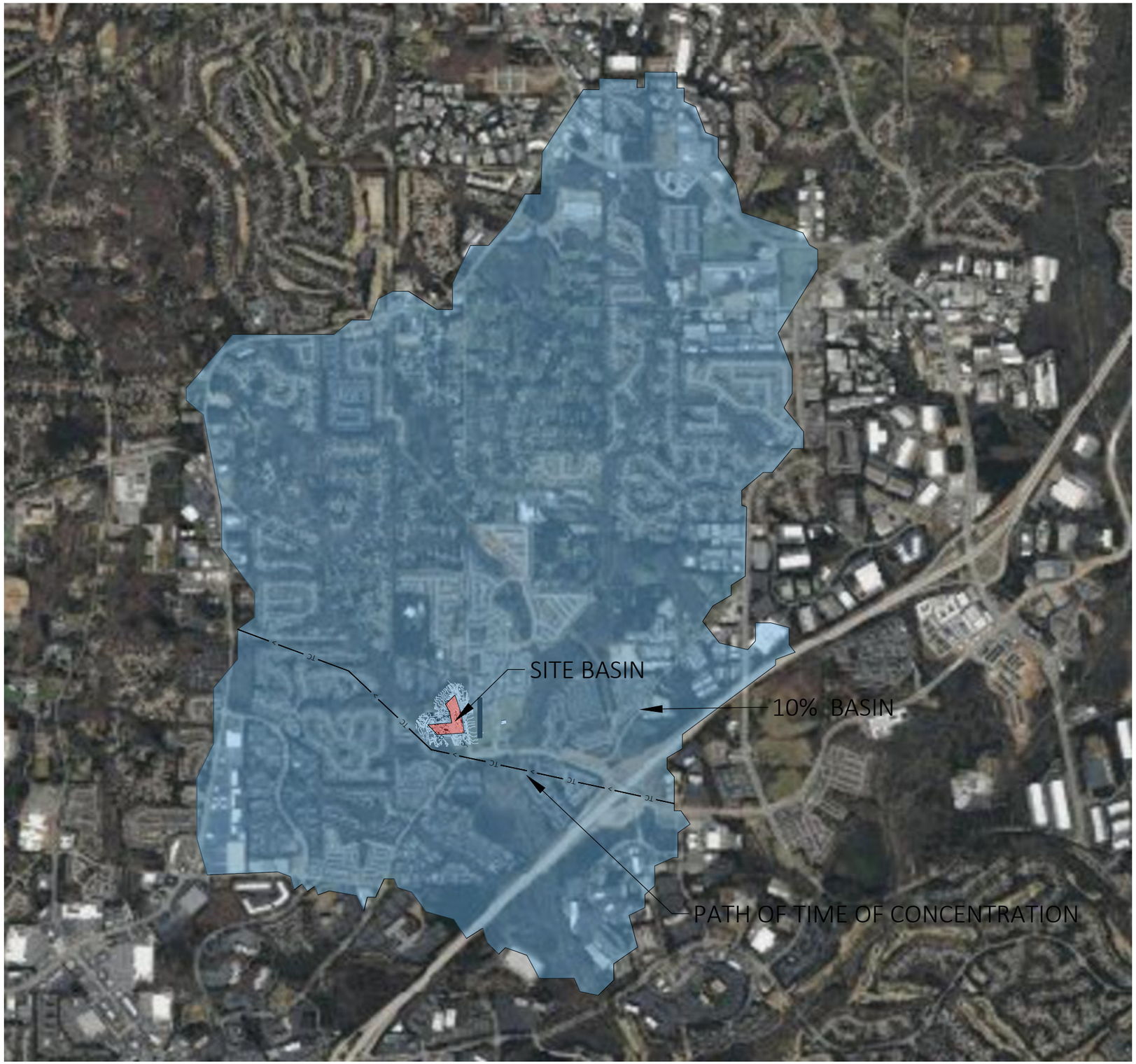
CONSTRUCTION

SCALE:
0' 50' 100' 200'
1" = 100'

REVISIONS	
NO.	DATE

DATE:	06/05/2024
DRAWN BY:	JK
CHECKED BY:	BA
PROJECT MANAGER:	BILL AGUILAR
PROJECT #:	24-220008
SHEET:	3

EXHIBIT 4: 10% ANALYSIS BASIN MAP



LEGEND

POST-BASIN SITE
AREA: 5.02 ACRES
CN: 63
Tc: 14 min

10% BASIN
AREA: 531 ACRES
CN: 72
Tc: 38.0 min

TIME OF CONCENTRATION — TC ——— >

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PREPARED FOR:

10% DOWNSTREAM ANALYSIS

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BETHANY BEND
MILTON, GA 30004

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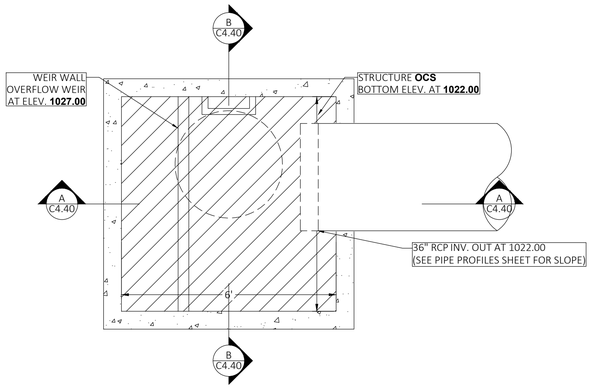
CONSTRUCTION

SCALE:
0' 1000' 2000'
1" = 2000'

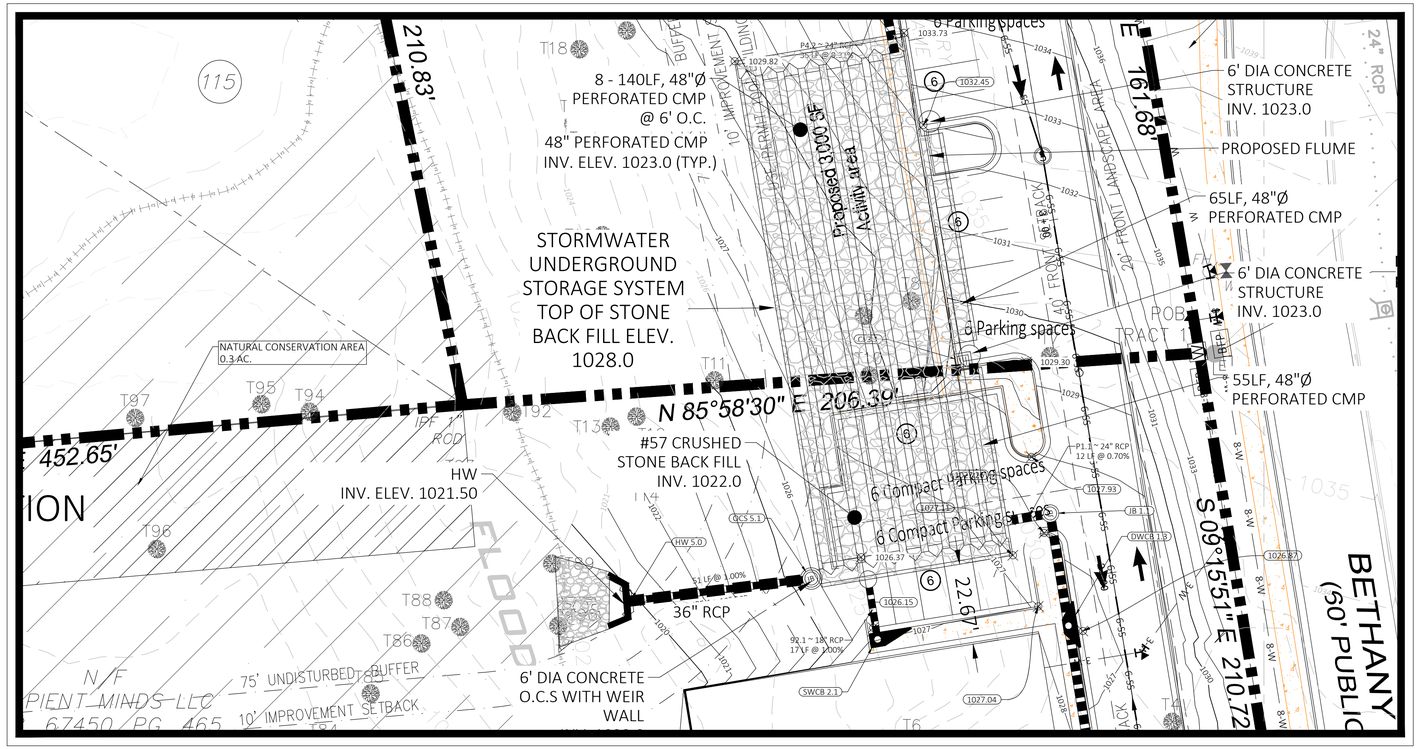
REVISIONS	
NO.	DATE

DATE:	06/05/2024
DRAWN BY:	JK
CHECKED BY:	BA
PROJECT MANAGER:	BILL AGUILAR
PROJECT #:	24-220008
SHEET:	4

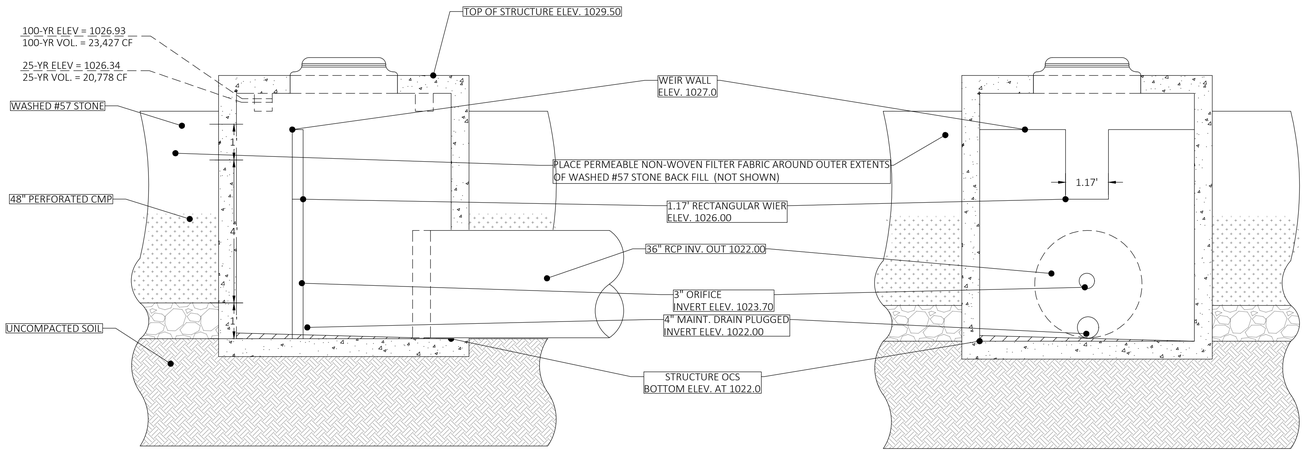
EXHIBIT 5: DETENTION POND AND OCS DETAIL



OUTLET CONTROL STRUCTURE
DETAIL VIEW
SCALE: NTS

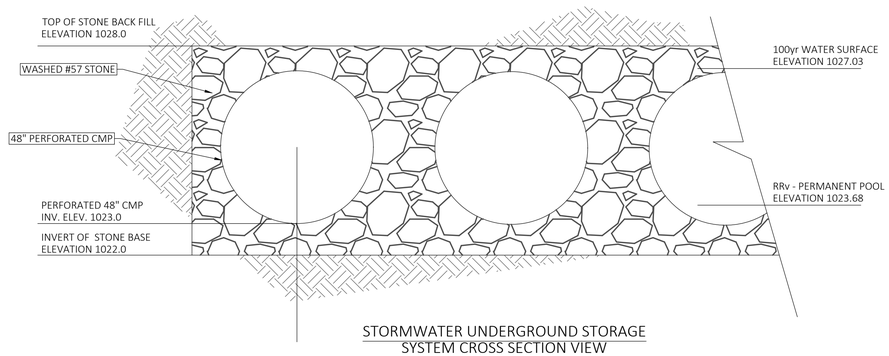


OUTLET CONTROL STRUCTURE
PLAN VIEW
SCALE: 1:20_XREF



OUTLET CONTROL STRUCTURE
SECTION VIEW (A-A)
SCALE: NTS

OUTLET CONTROL STRUCTURE
SECTION VIEW (B-B)
SCALE: NTS



STORMWATER UNDERGROUND STORAGE
SYSTEM CROSS SECTION VIEW
SCALE: NTS

GEORGIA 811 Utilities Protection Center, Inc.
Know what's below. Call before you dig.

MILTON MONTESSORI
3405 BETHANY BEND
MILTON, GA 30004
PHONE: ###-###-####

24 HOUR CONTACT:
MILTON MONTESSORI: 770-664-3869

PREPARED BY:
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STORMWATER MANAGEMENT PLAN

MILTON MONTESSORI
BETHANY BEND
MILTON, GA 30004

ZONING: ZONING
LAND LOT: LAND LOT
TAX DISTRICT: TAX DISTRICT
TAX PARCEL I.D.: 21 547009720240 / 21 547009720158

REVISIONS

NO.	DATE	DESCRIPTION

SCALE: N/A
DATE: 06/05/2024
DRAWN BY: JK
CHECKED BY: BA
PROJECT MANAGER: BILL AGUILAR
PROJECT #: 24-220008

NORTH

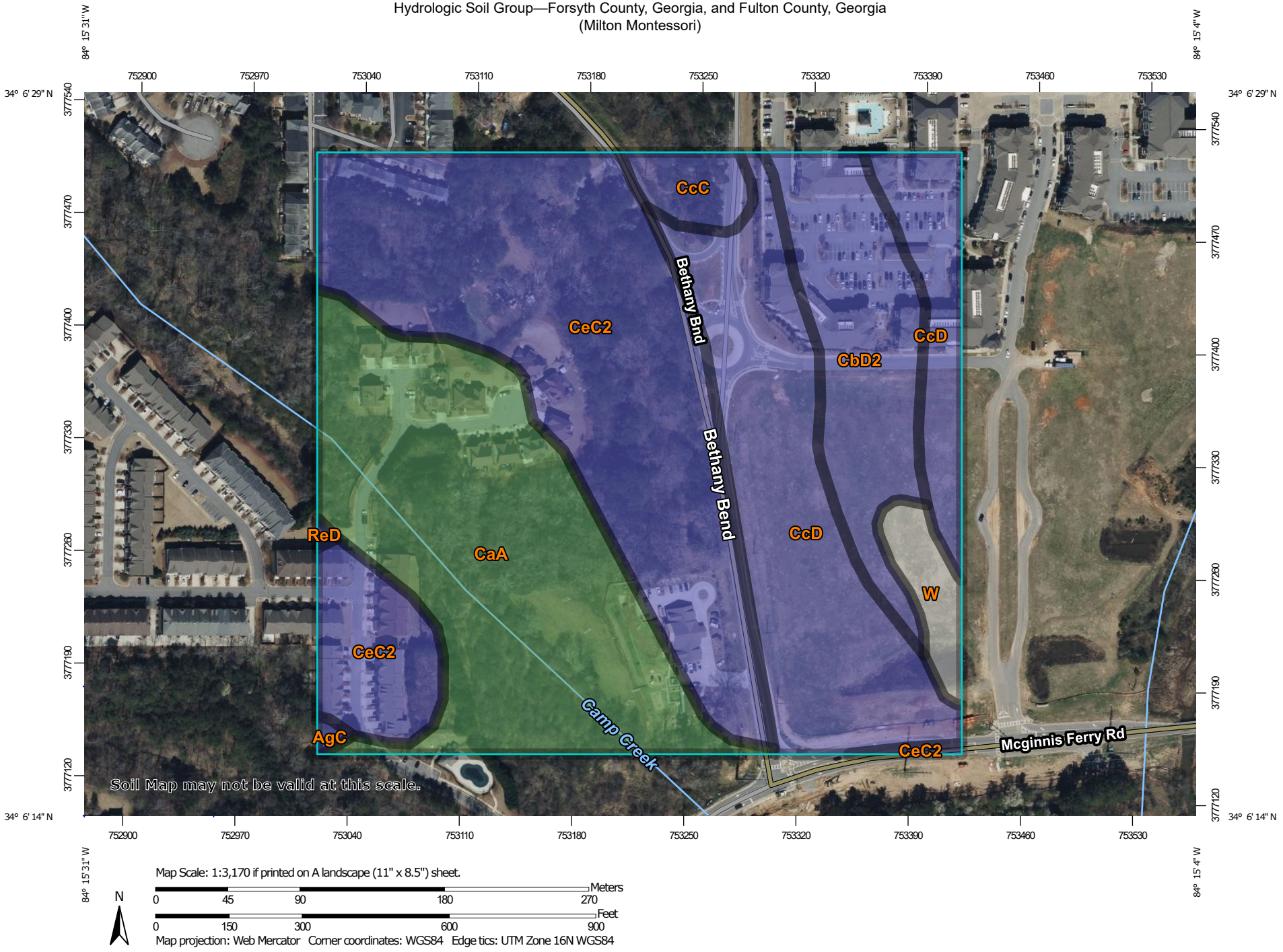
SHEET C4.40

APPENDICES

APPENDIX 1: WEB SOIL SURVEY – HYDROLOGIC SOIL GROUP MAP
APPENDIX 2: NOAA RAINFALL DATA
APPENDIX 3: WATER QUALITY SITE REVIEW TOOL
APPENDIX 4: WATER QUALITY AND CHANNEL PROTECTION VOLUME CALCULATIONS
APPENDIX 5: HYDRAFLOW HYDRAGRAPHS DATA
APPENDIX 6: BOUNDARY AND TOPOGRAPHIC SURVEY

APPENDIX 1

APPENDIX 1 WEB SOIL SURVEY – HYDROLOGIC SOIL GROUP MAP



Map Scale: 1:3,170 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:12,000 to 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Forsyth County, Georgia
Survey Area Data: Version 16, Aug 30, 2023

Soil Survey Area: Fulton County, Georgia
Survey Area Data: Version 18, Aug 30, 2023

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 14, 2022—Jun 21, 2022

MAP LEGEND

MAP INFORMATION

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CbD2	Cecil fine sandy loam, eroded sloping phase	B	4.0	10.7%
CcC	Cecil sandy loam, 6 to 10 percent slopes	B	0.8	2.1%
CcD	Cecil sandy loam, 10 to 15 percent slopes	B	8.5	22.9%
W	Water		0.9	2.3%
Subtotals for Soil Survey Area			**14.2**	**38.0%**
Totals for Area of Interest			**37.3**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AgC	Appling-Hard Labor complex, 6 to 10 percent slopes	B	0.1	0.2%
CaA	Cartecay-Toccoa complex, 0 to 2 percent slopes, occasionally flooded	A/D	10.0	26.9%
CeC2	Cecil sandy loam, 6 to 10 percent slopes, moderately eroded	B	13.0	34.8%
ReD	Rion sandy loam, 10 to 15 percent slopes	B	0.0	0.1%
Subtotals for Soil Survey Area			**23.1**	**62.0%**
Totals for Area of Interest			**37.3**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX 2

NOAA RAINFALL DATA

NOAA Atlas 14, Volume 9, Version 2
Location name: Alpharetta, Georgia, USA*
Latitude: 34.1053°, Longitude: -84.2547°
Elevation: 1022 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.413 (0.342-0.503)	0.474 (0.392-0.578)	0.577 (0.475-0.705)	0.666 (0.545-0.815)	0.791 (0.631-0.992)	0.891 (0.696-1.12)	0.994 (0.753-1.28)	1.10 (0.805-1.44)	1.25 (0.881-1.66)	1.36 (0.938-1.82)
10-min	0.605 (0.500-0.737)	0.694 (0.574-0.846)	0.845 (0.696-1.03)	0.975 (0.799-1.19)	1.16 (0.924-1.45)	1.30 (1.02-1.65)	1.46 (1.10-1.87)	1.61 (1.18-2.10)	1.83 (1.29-2.42)	2.00 (1.37-2.67)
15-min	0.738 (0.610-0.898)	0.847 (0.700-1.03)	1.03 (0.849-1.26)	1.19 (0.974-1.46)	1.41 (1.13-1.77)	1.59 (1.24-2.01)	1.78 (1.34-2.28)	1.97 (1.44-2.56)	2.23 (1.57-2.96)	2.43 (1.68-3.25)
30-min	1.04 (0.859-1.26)	1.19 (0.985-1.45)	1.45 (1.20-1.77)	1.67 (1.37-2.05)	1.99 (1.58-2.49)	2.24 (1.74-2.82)	2.49 (1.89-3.19)	2.76 (2.01-3.59)	3.12 (2.20-4.13)	3.40 (2.34-4.54)
60-min	1.33 (1.10-1.62)	1.52 (1.25-1.85)	1.84 (1.52-2.25)	2.12 (1.74-2.59)	2.52 (2.01-3.16)	2.84 (2.22-3.60)	3.18 (2.41-4.08)	3.53 (2.58-4.61)	4.02 (2.84-5.33)	4.40 (3.03-5.88)
2-hr	1.62 (1.35-1.96)	1.84 (1.54-2.23)	2.23 (1.85-2.70)	2.57 (2.12-3.11)	3.06 (2.47-3.80)	3.45 (2.73-4.33)	3.87 (2.97-4.92)	4.31 (3.19-5.57)	4.92 (3.52-6.47)	5.40 (3.77-7.15)
3-hr	1.81 (1.52-2.17)	2.05 (1.72-2.46)	2.47 (2.06-2.96)	2.84 (2.35-3.42)	3.38 (2.74-4.18)	3.82 (3.04-4.76)	4.29 (3.31-5.43)	4.79 (3.57-6.16)	5.48 (3.95-7.17)	6.04 (4.24-7.94)
6-hr	2.22 (1.88-2.64)	2.50 (2.11-2.97)	2.98 (2.51-3.55)	3.41 (2.86-4.07)	4.04 (3.32-4.96)	4.56 (3.66-5.64)	5.11 (3.99-6.41)	5.70 (4.30-7.26)	6.51 (4.76-8.44)	7.17 (5.10-9.34)
12-hr	2.76 (2.35-3.24)	3.10 (2.64-3.65)	3.68 (3.12-4.34)	4.19 (3.54-4.95)	4.92 (4.07-5.96)	5.51 (4.47-6.72)	6.13 (4.83-7.59)	6.78 (5.17-8.54)	7.68 (5.67-9.83)	8.39 (6.05-10.8)
24-hr	3.33 (2.86-3.88)	3.77 (3.24-4.39)	4.50 (3.85-5.25)	5.11 (4.36-5.98)	5.98 (4.97-7.14)	6.66 (5.44-8.02)	7.36 (5.86-9.00)	8.08 (6.22-10.0)	9.06 (6.77-11.5)	9.81 (7.18-12.5)
2-day	3.89 (3.37-4.48)	4.43 (3.83-5.11)	5.32 (4.59-6.14)	6.06 (5.22-7.02)	7.11 (5.96-8.39)	7.92 (6.53-9.43)	8.74 (7.03-10.6)	9.59 (7.47-11.8)	10.7 (8.10-13.4)	11.6 (8.59-14.6)
3-day	4.28 (3.73-4.90)	4.84 (4.21-5.55)	5.77 (5.01-6.63)	6.57 (5.68-7.57)	7.71 (6.52-9.07)	8.61 (7.15-10.2)	9.54 (7.72-11.5)	10.5 (8.25-12.8)	11.8 (9.01-14.7)	12.8 (9.59-16.1)
4-day	4.62 (4.04-5.27)	5.18 (4.52-5.91)	6.14 (5.35-7.02)	6.97 (6.05-7.99)	8.18 (6.96-9.60)	9.15 (7.64-10.8)	10.2 (8.28-12.2)	11.2 (8.88-13.7)	12.7 (9.75-15.8)	13.8 (10.4-17.3)
7-day	5.48 (4.83-6.20)	6.08 (5.35-6.88)	7.12 (6.25-8.07)	8.05 (7.03-9.15)	9.42 (8.10-11.0)	10.5 (8.90-12.4)	11.7 (9.68-14.0)	13.0 (10.4-15.8)	14.8 (11.5-18.3)	16.3 (12.4-20.1)
10-day	6.22 (5.50-7.00)	6.87 (6.07-7.73)	8.00 (7.06-9.03)	9.02 (7.92-10.2)	10.5 (9.11-12.2)	11.8 (10.0-13.8)	13.1 (10.9-15.6)	14.5 (11.7-17.5)	16.5 (13.0-20.3)	18.1 (13.9-22.3)
20-day	8.29 (7.40-9.24)	9.14 (8.15-10.2)	10.6 (9.43-11.8)	11.9 (10.5-13.3)	13.7 (12.0-15.7)	15.2 (13.0-17.6)	16.8 (14.1-19.7)	18.4 (15.0-21.9)	20.7 (16.4-25.1)	22.5 (17.5-27.5)
30-day	10.2 (9.12-11.3)	11.2 (10.0-12.4)	12.9 (11.6-14.3)	14.4 (12.8-16.0)	16.4 (14.4-18.6)	18.0 (15.5-20.6)	19.7 (16.6-22.8)	21.4 (17.5-25.2)	23.7 (18.9-28.4)	25.4 (19.9-30.8)
45-day	12.8 (11.5-14.0)	14.0 (12.6-15.4)	16.1 (14.4-17.7)	17.7 (15.9-19.6)	19.9 (17.5-22.4)	21.6 (18.7-24.5)	23.3 (19.7-26.7)	24.9 (20.5-29.0)	27.0 (21.6-32.0)	28.5 (22.5-34.3)
60-day	15.1 (13.7-16.6)	16.6 (15.0-18.2)	18.9 (17.0-20.7)	20.7 (18.6-22.7)	23.0 (20.2-25.6)	24.7 (21.3-27.7)	26.2 (22.2-29.9)	27.7 (22.9-32.1)	29.5 (23.8-34.7)	30.7 (24.4-36.8)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

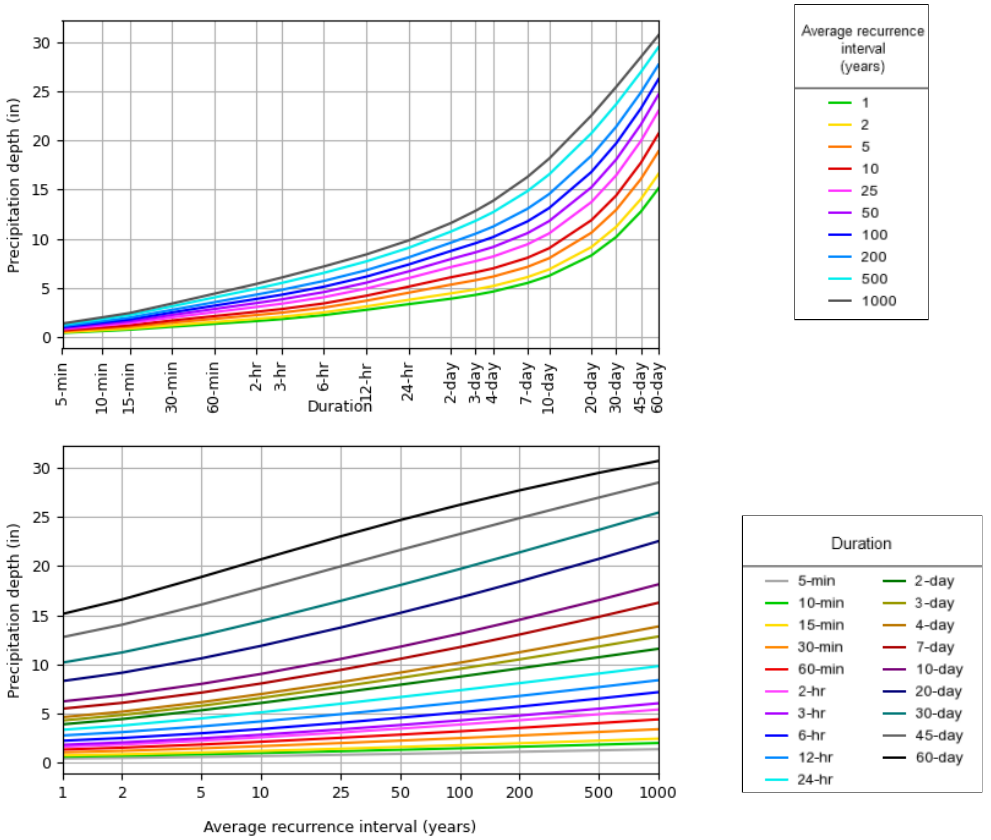
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 34.1053°, Longitude: -84.2547°



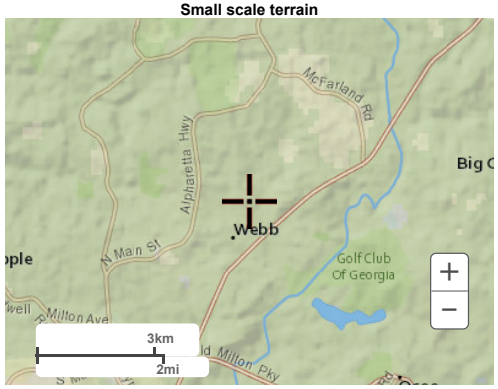
NOAA Atlas 14, Volume 9, Version 2

Created (GMT): Wed May 22 12:53:21 2024

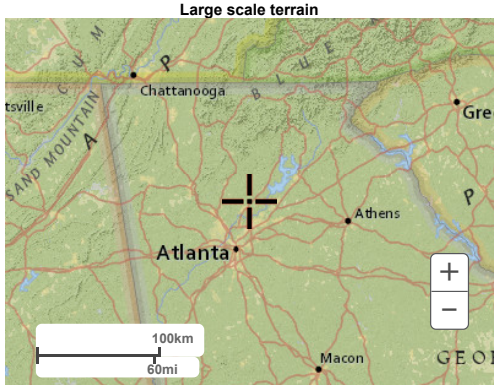
Back to Top

Maps & aerials

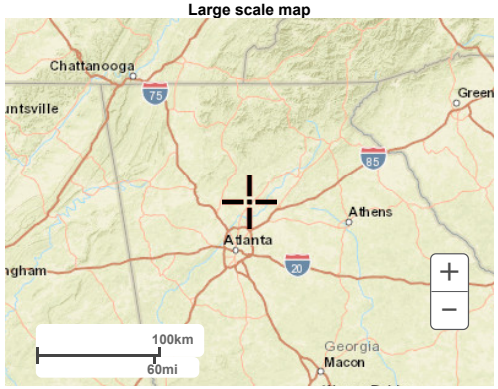
Small scale terrain



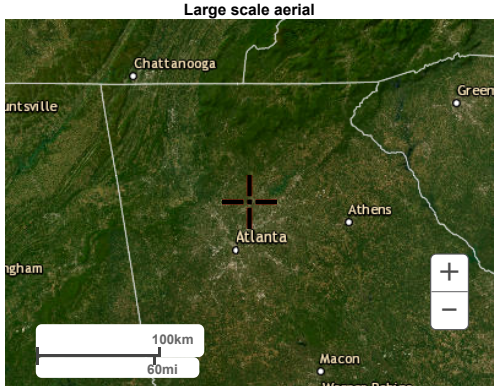
Large scale terrain



Large scale map



Large scale aerial



Back to Top

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National Weather Service
National Water Center
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Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

NOAA Atlas 14, Volume 9, Version 2
Location name: Alpharetta, Georgia, USA*
Latitude: 34.1053°, Longitude: -84.2547°
Elevation: 1022 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**4.96** (4.10-6.04)	**5.69** (4.70-6.94)	**6.92** (5.70-8.46)	**7.99** (6.54-9.78)	**9.49** (7.57-11.9)	**10.7** (8.35-13.5)	**11.9** (9.04-15.3)	**13.2** (9.66-17.2)	**15.0** (10.6-19.9)	**16.3** (11.3-21.9)
10-min	**3.63** (3.00-4.42)	**4.16** (3.44-5.08)	**5.07** (4.18-6.19)	**5.85** (4.79-7.16)	**6.95** (5.54-8.71)	**7.83** (6.11-9.89)	**8.74** (6.62-11.2)	**9.68** (7.07-12.6)	**11.0** (7.74-14.5)	**12.0** (8.24-16.0)
15-min	**2.95** (2.44-3.59)	**3.39** (2.80-4.13)	**4.12** (3.40-5.03)	**4.76** (3.90-5.82)	**5.65** (4.51-7.08)	**6.37** (4.97-8.04)	**7.10** (5.38-9.10)	**7.87** (5.75-10.3)	**8.92** (6.29-11.8)	**9.73** (6.70-13.0)
30-min	**2.08** (1.72-2.53)	**2.39** (1.97-2.91)	**2.90** (2.39-3.54)	**3.35** (2.74-4.09)	**3.97** (3.17-4.98)	**4.47** (3.49-5.64)	**4.98** (3.77-6.38)	**5.51** (4.03-7.18)	**6.23** (4.40-8.27)	**6.80** (4.68-9.09)
60-min	**1.33** (1.10-1.62)	**1.52** (1.25-1.85)	**1.84** (1.52-2.25)	**2.12** (1.74-2.59)	**2.52** (2.01-3.16)	**2.84** (2.22-3.60)	**3.18** (2.41-4.08)	**3.53** (2.58-4.61)	**4.02** (2.84-5.33)	**4.40** (3.03-5.88)
2-hr	**0.810** (0.675-0.977)	**0.922** (0.768-1.11)	**1.11** (0.925-1.35)	**1.28** (1.06-1.56)	**1.53** (1.23-1.90)	**1.73** (1.36-2.16)	**1.93** (1.48-2.46)	**2.15** (1.59-2.79)	**2.46** (1.76-3.24)	**2.70** (1.88-3.58)
3-hr	**0.603** (0.505-0.723)	**0.682** (0.571-0.819)	**0.821** (0.685-0.987)	**0.944** (0.783-1.14)	**1.12** (0.913-1.39)	**1.27** (1.01-1.59)	**1.43** (1.10-1.81)	**1.59** (1.19-2.05)	**1.82** (1.32-2.39)	**2.01** (1.41-2.64)
6-hr	**0.370** (0.313-0.440)	**0.417** (0.352-0.495)	**0.497** (0.419-0.592)	**0.569** (0.477-0.679)	**0.675** (0.553-0.828)	**0.762** (0.612-0.941)	**0.853** (0.666-1.07)	**0.951** (0.717-1.21)	**1.09** (0.794-1.41)	**1.20** (0.852-1.56)
12-hr	**0.228** (0.195-0.269)	**0.257** (0.218-0.302)	**0.305** (0.259-0.360)	**0.347** (0.293-0.410)	**0.408** (0.337-0.494)	**0.457** (0.370-0.558)	**0.508** (0.400-0.630)	**0.562** (0.429-0.708)	**0.637** (0.470-0.816)	**0.696** (0.502-0.897)
24-hr	**0.138** (0.119-0.161)	**0.157** (0.134-0.183)	**0.187** (0.160-0.218)	**0.213** (0.181-0.249)	**0.249** (0.207-0.297)	**0.277** (0.226-0.334)	**0.306** (0.243-0.374)	**0.336** (0.259-0.418)	**0.377** (0.281-0.477)	**0.408** (0.299-0.521)
2-day	**0.081** (0.070-0.093)	**0.092** (0.079-0.106)	**0.110** (0.095-0.127)	**0.126** (0.108-0.146)	**0.148** (0.124-0.174)	**0.164** (0.136-0.196)	**0.182** (0.146-0.220)	**0.199** (0.155-0.245)	**0.223** (0.168-0.279)	**0.241** (0.178-0.304)
3-day	**0.059** (0.051-0.068)	**0.067** (0.058-0.077)	**0.080** (0.069-0.092)	**0.091** (0.078-0.105)	**0.107** (0.090-0.126)	**0.119** (0.099-0.141)	**0.132** (0.107-0.159)	**0.145** (0.114-0.178)	**0.164** (0.125-0.204)	**0.178** (0.133-0.223)
4-day	**0.048** (0.042-0.054)	**0.053** (0.047-0.061)	**0.063** (0.055-0.073)	**0.072** (0.063-0.083)	**0.085** (0.072-0.100)	**0.095** (0.079-0.112)	**0.105** (0.086-0.127)	**0.116** (0.092-0.142)	**0.132** (0.101-0.164)	**0.144** (0.108-0.180)
7-day	**0.032** (0.028-0.036)	**0.036** (0.031-0.040)	**0.042** (0.037-0.048)	**0.047** (0.041-0.054)	**0.056** (0.048-0.065)	**0.062** (0.053-0.073)	**0.069** (0.057-0.083)	**0.077** (0.062-0.094)	**0.088** (0.068-0.108)	**0.096** (0.073-0.119)
10-day	**0.025** (0.022-0.029)	**0.028** (0.025-0.032)	**0.033** (0.029-0.037)	**0.037** (0.033-0.042)	**0.043** (0.037-0.050)	**0.049** (0.041-0.057)	**0.054** (0.045-0.064)	**0.060** (0.048-0.073)	**0.068** (0.053-0.084)	**0.075** (0.057-0.093)
20-day	**0.017** (0.015-0.019)	**0.019** (0.016-0.021)	**0.022** (0.019-0.024)	**0.024** (0.021-0.027)	**0.028** (0.024-0.032)	**0.031** (0.027-0.036)	**0.034** (0.029-0.040)	**0.038** (0.031-0.045)	**0.043** (0.034-0.052)	**0.046** (0.036-0.057)
30-day	**0.014** (0.012-0.015)	**0.015** (0.013-0.017)	**0.017** (0.016-0.019)	**0.019** (0.017-0.022)	**0.022** (0.019-0.025)	**0.025** (0.021-0.028)	**0.027** (0.023-0.031)	**0.029** (0.024-0.035)	**0.032** (0.026-0.039)	**0.035** (0.027-0.042)
45-day	**0.011** (0.010-0.012)	**0.012** (0.011-0.014)	**0.014** (0.013-0.016)	**0.016** (0.014-0.018)	**0.018** (0.016-0.020)	**0.020** (0.017-0.022)	**0.021** (0.018-0.024)	**0.023** (0.018-0.026)	**0.024** (0.020-0.029)	**0.026** (0.020-0.031)
60-day	**0.010** (0.009-0.011)	**0.011** (0.010-0.012)	**0.013** (0.011-0.014)	**0.014** (0.012-0.015)	**0.015** (0.014-0.017)	**0.017** (0.014-0.019)	**0.018** (0.015-0.020)	**0.019** (0.015-0.022)	**0.020** (0.016-0.024)	**0.021** (0.016-0.025)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

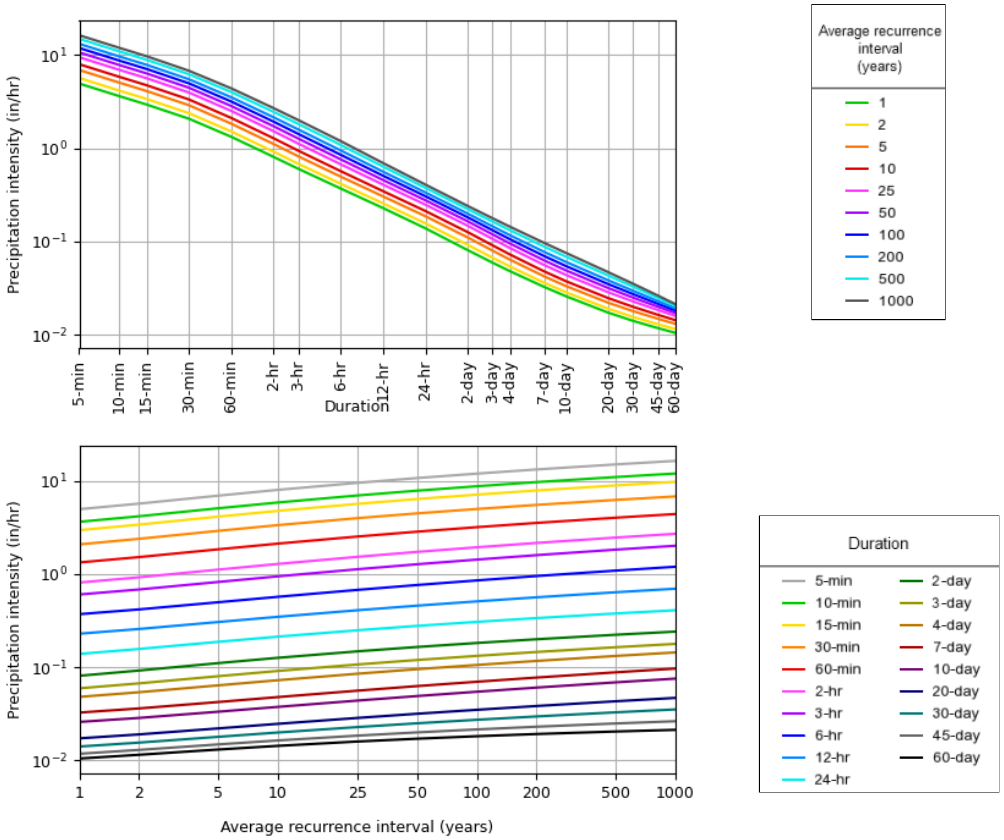
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 34.1053°, Longitude: -84.2547°



NOAA Atlas 14, Volume 9, Version 2

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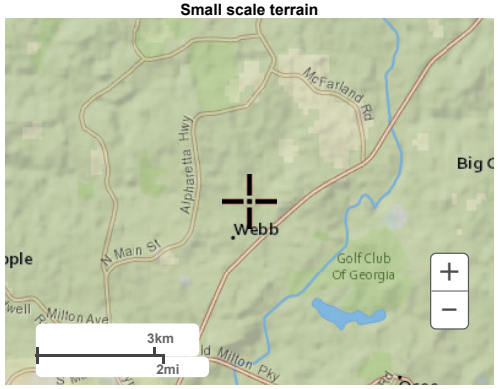
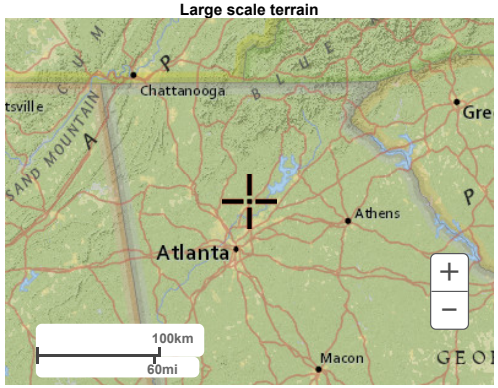
Back to Top

Maps & aerials

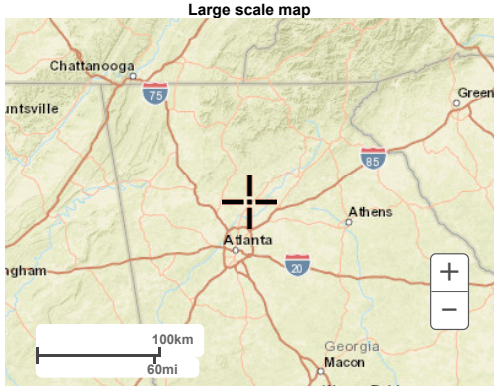
Small scale terrain



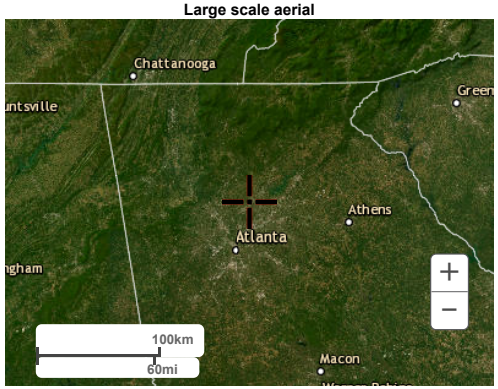
Large scale terrain



Large scale map



Large scale aerial



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

APPENDIX 3

WATER QUALITY SITE REVIEW TOOL

Georgia Stormwater Management Manual
Stormwater Quality Site Development Review Tool
Version 2.2

General Information

Name of Developer:	MILTON MONTESSORI	**Date Submitted:**	
Development Name:	MILTON MONTESSORI	**Permit Number:**	
Site Location / Address:	3505 BETHANY BEND	**Developer Contact:**	MILTON MONTESSORI
	MILTON, GA	**Phone Number:**	770-665-2869
		Name of Engineer(s):	LOWE ENGINEER
Development Type:	Institutional, Public & Semi Public	**Maintenance Responsibility:**	OWNER

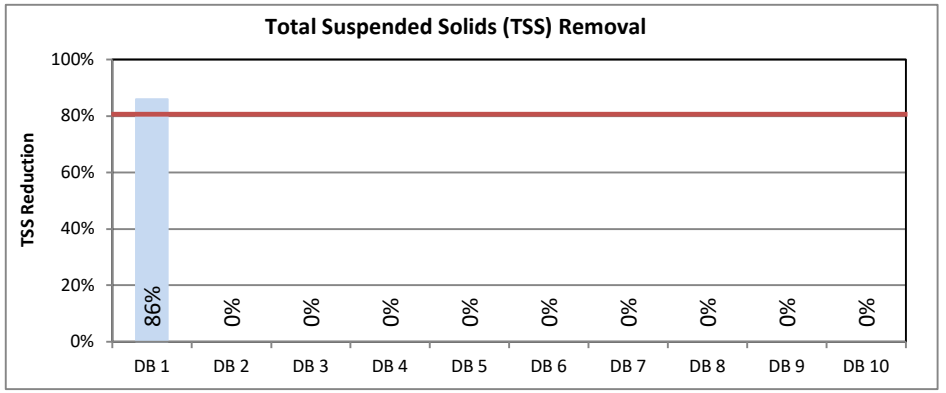
Site Summary

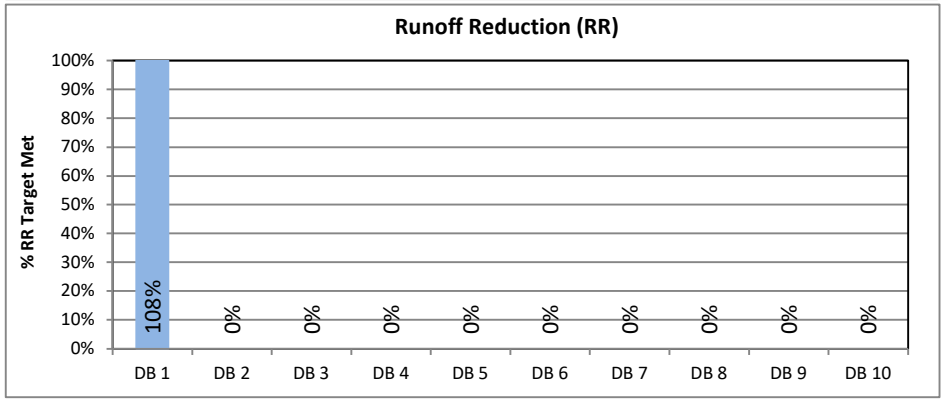
Total Pre-Development Area (ac):	**2.36**
Total Post-Development Area (ac):	**2.66**
Total Treated Area (ac):	**1.59**
Total Untreated Area (ac):	**1.07**

		I (ac)	P (ac)	CA (ac)
Underground Storage System	**DB 1**	1.36	1.00	0.30
Drainage Basin 2	**DB 2**	0.00	0.00	0.00
Drainage Basin 3	**DB 3**	0.00	0.00	0.00
Drainage Basin 4	**DB 4**	0.00	0.00	0.00
Drainage Basin 5	**DB 5**	0.00	0.00	0.00
Drainage Basin 6	**DB 6**	0.00	0.00	0.00
Drainage Basin 7	**DB 7**	0.00	0.00	0.00
Drainage Basin 8	**DB 8**	0.00	0.00	0.00
Drainage Basin 9	**DB 9**	0.00	0.00	0.00
Drainage Basin 10	**DB 10**	0.00	0.00	0.00
	TOTAL	**1.36**	**1.00**	**0.30**

I = Impervious Area, P = Pervious Area, CA = Conservation Area

Target Runoff Reduction Volume Achieved?	**Yes**
Target TSS Removal Achieved?	**Yes**
Total Target Runoff Reduction Volume (cf)	4,370
Runoff Reduction Volume Achieved (cf)	4,699
Total Target Water Quality Volume (cf)	5,244
% TSS Removal Achieved	86%





Official Use Only

Tracking #:		**Conditions of Approval:**	
Reviewed By:			
Date Approved:			

A RECORDED CONSERVATION EASEMENT OR SIMILAR FORM OF PROTECTION IS REQUIRED FOR THIS PROJECT

Georgia Stormwater Management Manual
Stormwater Quality Site Development Review Tool, v2.2
Runoff Reduction and TSS Removal Efficiencies

data input cells constant values

	Runoff Reduction %	Effective TSS Removal %	Runoff Reduction Method	Drainage Area Restrictions	Units	Min/Max
Bioretention Basin (w/ underdrain)	50%	85%	Storage	5	acres	Max
Bioretention Basin (w/ upturned underdrain)	75%	85%	Storage	5	acres	Max
Bioretention Basin (w/o underdrain)	100%	100%	Storage	5	acres	Max
Bioslope (A & B hydrologic soils)	50%	85%	Storage	--	--	--
Bioslope (C & D hydrologic soils)	25%	85%	Storage	--	--	--
Downspout Disconnect (A & B hydrologic soils)	50%	80%	Convey	2500	ft^2	Max
Downspout Disconnect (C & D hydrologic soils)	25%	80%	Convey	2500	ft^2	Max
Dry Detention Basin	0%	60%	Storage	75	acres	Max
Dry Extended Detention Basin	0%	60%	Storage	--	--	--
Dry Well	100%	100%	Storage	2500	ft^2	Max
Enhanced Dry Swale (w/ underdrain)	50%	80%	Storage	5	acres	Max
Enhanced Dry Swale (w/o underdrain)	100%	100%	Storage	5	acres	Max
Enhanced Wet Swale	0%	80%	Storage	5	acres	Max
Grass Channel (A & B hydrologic soils)	25%	50%	Convey	5	acres	Max
Grass Channel (C & D hydrologic soils)	10%	50%	Convey	5	acres	Max
Gravity (oil-grit) Separator	0%	40%	Convey	5	acres	Max
Green Roof	60%	80%	Storage	--	--	--
Infiltration Trench	100%	100%	Storage	5	acres	Max
Multi-Purpose Detention Basin	0%		Storage	--	--	--
Organic Filter	0%	80%	Storage	10	acres	Max
Permeable Paver System (w/ underdrain)	50%	80%	Storage	--	--	--
Permeable Paver System (w/ upturned underdrain)	75%	80%	Storage	--	--	--
Permeable Paver System (w/o underdrain)	100%	100%	Storage			
Pervious Concrete (w/ underdrain)	50%	80%	Storage	--	--	--
Pervious Concrete (w/ upturned underdrain)	75%	80%	Storage			
Pervious Concrete (w/o underdrain)	100%	100%	Storage	--	--	--
Porous Asphalt (w/ underdrain)	50%	50%	Storage	--	--	--
Porous Asphalt (w/ upturned underdrain)	75%	50%	Storage			
Porous Asphalt (w/o underdrain)	100%	100%	Storage	--	--	--
Porous Asphalt (OGFC, PEM)	0%	50%	Convey	--	--	--
Proprietary System	100%	80%	Storage	5	acres	Max
Rainwater Harvesting			Storage			
Regenerative Stormwater Conveyance	0%	80%	Storage	50	acres	Max
Sand Filter	0%	80%	Storage	10	acres	Max
Site Reforestation/Revegetation	0%	0%	Convey	--	--	--
Soil Restoration (can be used to remediate C & D soils)	0%	0%	Convey	--	--	--
Stormwater Planter / Tree Box	50%	80%	Storage	2500	ft^2	Max
Stormwater Pond	0%	80%	Storage	10-25	acres	Min
Stormwater Wetlands – Level 1	0%	80%	Convey	5	acres	Min
Stormwater Wetlands – Level 2	0%	85%	Convey	5	acres	Min
Submerged Gravel Wetlands	0%	80%	Convey	5	acres	Min
Underground Detention	0%	0%	Convey	--	--	--
Vegetated Filter Strip (A & B hydrologic soils)	50%	60%	Convey	--	--	--
Vegetated Filter Strip (C & D hydrologic soils)	25%	60%	Convey	--	--	--
[User Input 1]						
[User Input 2]						
[User Input 3]						

Georgia Stormwater Management Manual
Stormwater Quality Site Development Review Tool, v2.2

Development Name: MILTON MONTESSORI
Drainage Basin Name: Underground Storage System

data input cells
calculation cells
constant values

Site Data

Indicate Pre-Development Land Cover and Runoff Curve Numbers in the Site's Disturbed Area

Cover Type	HSG* A (acres)	CN	HSG B (acres)	CN	HSG C (acres)	CN	HSG D (acres)	CN	Total	% Cover
Woods - Good Condition		30	2.36	55		70		77	2.36	100%
Select a land cover type…		0		0		0		0	0.00	0%
Select a land cover type…		0		0		0		0	0.00	0%
Select a land cover type…		0		0		0		0	0.00	0%
Select a land cover type…		0		0		0		0	0.00	0%
Local Jurisdiction Input									0.00	0%
Other									0.00	0%
Total	0.00		2.36		0.00		0.00		2.36	100%

*HSG = hydrologic soil group

Impervious (ac)	0.00
Weighted CN	55
Potential Max Soil Retention, S_{pre} (in)	8.18

Indicate Post-Development Land Cover and Runoff Curve Numbers in the Site's Disturbed Area

Cover Type	HSG A (acres)	CN	HSG B (acres)	CN	HSG C (acres)	CN	HSG D (acres)	CN	Total	% Cover
Impervious		98	1.36	98		98		98	1.36	51%
Open space - Good condition (grass cover > 75%)		39	0.40	61		74		80	0.40	15%
Woods - Good Condition		30	0.60	55		70	0.30	77	0.90	34%
Select a land cover type…		0		0		0		0	0.00	0%
Select a land cover type…		0		0		0		0	0.00	0%
Local Jurisdiction Input									0.00	0%
Other									0.00	0%
Total	0.00		2.36		0.00		0.30		2.66	100%

Impervious (ac)	1.36
Rv	0.51
Weighted CN	80
Potential Max Soil Retention, S_{post} (in)	2.44

Conservation Area Credits

Scenario 1: Natural Conservation Area **See the GSMM Volume 2, Section 2.3.3.3 for more information.*

☑ Check the box if a portion of the post-developed area is protected by a conservation easement or equivalent form of protection.

0.3 Area (ac) of development protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 1 box above is checked

Scenario 2: Site Reforestation/Revegetation **See the GSMM Volume 2, Section 4.22 for more information.*

☐ Check the box if a portion of the post-developed area employs site reforestation/revegetation and is protected by a conservation easement or equivalent form of protection.

Area (ac) of development reforested/revegetated and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 2 box above is checked

Scenario 3: Soil Restoration **See the GSMM Volume 2, Section 4.23 for more information.*

☐ Check the box if a portion of the post-developed area employs soil restoration and is protected by a conservation easement or equivalent form of protection.

Area (ac) of development with restored soils and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 3 box above is checked

Scenario 4: Site Reforestation/Revegetation & Soil Restoration **See the GSMM Volume 2, Section 4.22 and 4.23 for more information.*

☐ Check the box if the same portion of the post-developed area employs site reforestation/revegetation and soil restoration, and is protected by a conservation easement or equivalent form of protection.

Area (ac) with restored soils in a reforested & revegetated area and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 4 box above is checked

Total Conservation Area Credit (acres) **0.30**

Georgia Stormwater Management Manual
Stormwater Quality Site Development Review Tool, v2.2

Development Name: MILTON MONTESSORI
Drainage Basin Name: Underground Storage System

data input cells
calculation cells
constant values

Water Quality Goals

Target Runoff Reduction Storm (in): 1.00

Total Site Area for Water Quality Volume (acres)	2.36
Target Runoff Reduction Volume (cf)	4,370
Target Water Quality Volume (cf)	5,244

Select BMPs for Runoff Reduction and Water Quality

		Area Draining to Each BMP			Storage Volume Provided by BMP (cf)	RR Conveyance Volume Provided by BMP (cf)	Down-stream BMP	Runoff Reduction Calculations						WQ Calculations	
		On-site Pervious Area (acres)	On-site Impervious Area (acres)	Offsite Area (acres)				RR Volume from Direct Drainage (cf)	RR Volume from Upstream Practices (cf)	Total RR Volume Received by BMP (cf)	Runoff Reduction %	RR Achieved (cf)	Remaining RR Volume (cf)	WQ_v from Direct Drainage (cf)	Effective TSS Removal %
BMP 1	Proprietary System	0.24	1.35		5,000			4,699	0	4,699	100%	4,699	0	5,639	80%
BMP 2	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 3	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 4	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 5	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 6	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 7	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 8	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 9	Select a BMP…							0	0	0	N/A	0	0	0	N/A
BMP 10	Select a BMP…							0	0	0	N/A	0	0	0	N/A
	TOTAL	0.24	1.35	0.00				4,699				4,699		5,639	
	UNTREATED AREA (acres)	1.06	0.01												

Target Runoff Reduction Volume (cf)	4,370
Target Achieved?	Yes!
Remaining Runoff Reduction Volume (cf)	0

Target Water Quality Volume (cf)	5,244
% TSS Removal Achieved	86%
Target Achieved?	Yes!
Remaining TSS Removal %	0%

Georgia Stormwater Management Manual
Stormwater Quality Site Development Review Tool, v2.2

Development Name: MILTON MONTESSORI
Drainage Basin Name: Underground Storage System

data input cells
calculation cells
constant values

Channel and Flood Protection Calculations

	1-yr, 24-hr storm	2-yr, 24-hr storm	25-yr, 24-hr storm	100-yr, 24-hr storm
Target Rainfall Event (in)				

	1-yr, 24-hr storm	2-yr, 24-hr storm	25-yr, 24-hr storm	100-yr, 24-hr storm
Pre-Development Runoff Volume (in)	0.00	0.00	0.00	0.00
Post Development Runoff Volume (in) with no BMPs	0.00	0.00	0.00	0.00
Post-Development Runoff Volume (in) with BMPs	0.00	0.00	0.00	0.00
Adjusted CN	**0**	**0**	**0**	**0**

*See Stormwater Management Standards to Determine Detention Requirements.

Comments

A RECORDED CONSERVATION EASEMENT OR SIMILAR FORM OF PROTECTION IS REQUIRED FOR THIS PROJECT

APPENDIX 4

WATER QUALITY AND CHANNEL PROTECTION VOLUME CALCULATIONS

WATER QUALITY AND CHANNEL PROTECTION CALCULATIONS

Water Quality - WQv Calculations:

Methodology:

WQv = 1.2 * Rv * A

Rv = 0.05 + (0.009 * I)

Qwv = P*Rv

CN = 1000/(10+(5*P)+(10*Q)-(10*(((Qwv^2)+1.25*Qwv*P)^0.5)))

Qwq = qu*A/640*Qwv 1.888

S = (1000/CN) - 10

Ia = 0.2S

Site Information:

Basin 1 Site Area (ac.)	2.36	
Basin 1 Impervious Area (ac.)	1.36	
Impervious area (%)	57.6	→ *percent impervious area*
Rv	0.57	→ *weighted volumetric runoff coefficient*
WQv (cu.ft.)	**5,846**	
Total Required WQv (cu.ft.)	**5,846**	
50% WQv	*2,923*	
Total Provided WQv (cu.ft.)	**5,983**	@ ELEV 1023.70

WaterQuality Volume provided in Runoff Reduction through Infiltration.

Channel Protection - CPv Calculations:

Methodology:

CPv = Vs = (Vs/Vr)*Qd*A/12 * *Total Required CPv = Total Volume - 50% WQv*

Q = $(P - 0.2S)^2/(P+0.8S)$

S = (1000/CN) - 10

Site Information:

P (in.)	3.33	*1-yr 24-hr*	**Tc (hrs)**	0.20	11.8
A (ac.)	2.36		**qu (cfs/sq. mi./in)**	750	*From Figure 3.1.5-6*
CN	80.8		**qo/qu**	0.025	*From Figure 3.3.5-1*
S	2.38		**Vs/Vr**	0.647	
Ia	0.475		**Qd (in.)**	1.56	
Ia/P	0.14				

CPv (cu.ft.)	**8,637**		
Total Required CPv (cu.ft.)	**5,715**		
Total Required Volume (cu.ft.)	11,560		
Total Provided CPv (cu.ft.)	**13,150**		
Total Provided Volume (cu.ft.)	19,133	@ ELEV	1026.00

Orifice Sizing

Bottom of Micropool/Pond:	0.00	0
WQ Orfice Invert:	1087.00	0
WQ Elevation:	1023.70	5,983

WQ Elev	H	OR. AREA	OR. DIA (")	Round Down	USE
1023.70	1023.70	0.0006357	0.34	0.25	0.5

Extended Det/Routed STOR
5,983

Orifice Sizing

WQ Elevation:	1023.70	5,983
CP Elevation:	1026.00	19,133

CP ELEV	H	OR. AREA	OR. DIA (")	Round Down
1026.00	2.30	0.029476	2.32	2

Routed STOR
25,400

APPENDIX 5

HYDRAFLOW HYDROGRAPHS

Hydraflow Table of Contents

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	2.892	4.347	-------	7.044	9.514	13.30	16.49	19.91	Pre Basin - Onsite STP
2	SCS Runoff	------	367.03	487.52	-------	702.19	892.19	1175.05	1403.17	1642.95	10 percent Area
3	SCS Runoff	------	2.576	3.764	-------	5.948	7.936	10.96	13.45	16.13	Post Bsin - Onsite Bypass
4	SCS Runoff	------	6.492	7.494	-------	9.145	10.52	12.47	13.98	15.53	Post Basin - Onsite BMP
5	Reservoir	4	0.260	0.285	-------	0.323	0.403	1.134	2.203	3.913	ROUTE BMP
6	Combine	3, 5	2.816	4.027	-------	6.245	8.260	11.55	15.25	19.63	POST STP
7	Combine	1, 2,	368.12	489.02	-------	704.41	895.06	1178.89	1407.79	1649.98	PRE POI
8	Combine	2, 6,	367.93	488.66	-------	703.76	894.13	1178.30	1407.61	1649.18	POST POI

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	2.892	2	724	10,281	------	------	------	Pre Basin - Onsite STP
2	SCS Runoff	367.03	2	738	1,949,289	------	------	------	10 percent Area
3	SCS Runoff	2.576	2	722	7,973	------	------	------	Post Bsin - Onsite Bypass
4	SCS Runoff	6.492	2	716	13,911	------	------	------	Post Basin - Onsite BMP
5	Reservoir	0.260	2	778	10,031	4	1025.04	13,560	ROUTE BMP
6	Combine	2.816	2	722	18,004	3, 5	------	------	POST STP
7	Combine	368.12	2	738	1,959,568	1, 2,	------	------	PRE POI
8	Combine	367.93	2	738	1,967,292	2, 6,	------	------	POST POI

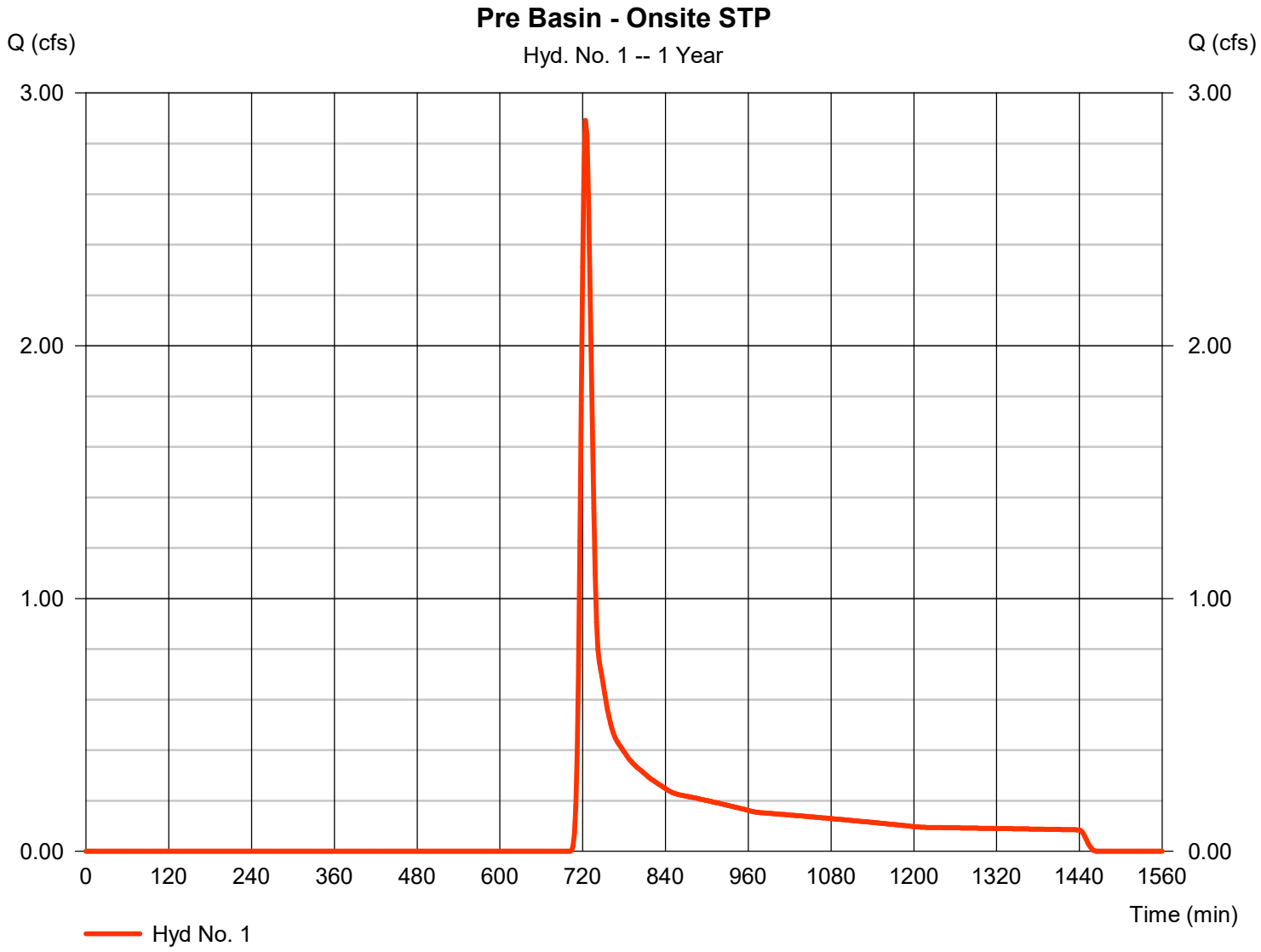
Hydrograph Report

Hyd. No. 1

Pre Basin - Onsite STP

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.892 cfs
Storm frequency	=	1 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	10,281 cuft
Drainage area	=	5.020 ac	Curve number	=	63*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.00 min
Total precip.	=	3.33 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.290 x 55) + (1.730 x 77)] / 5.020



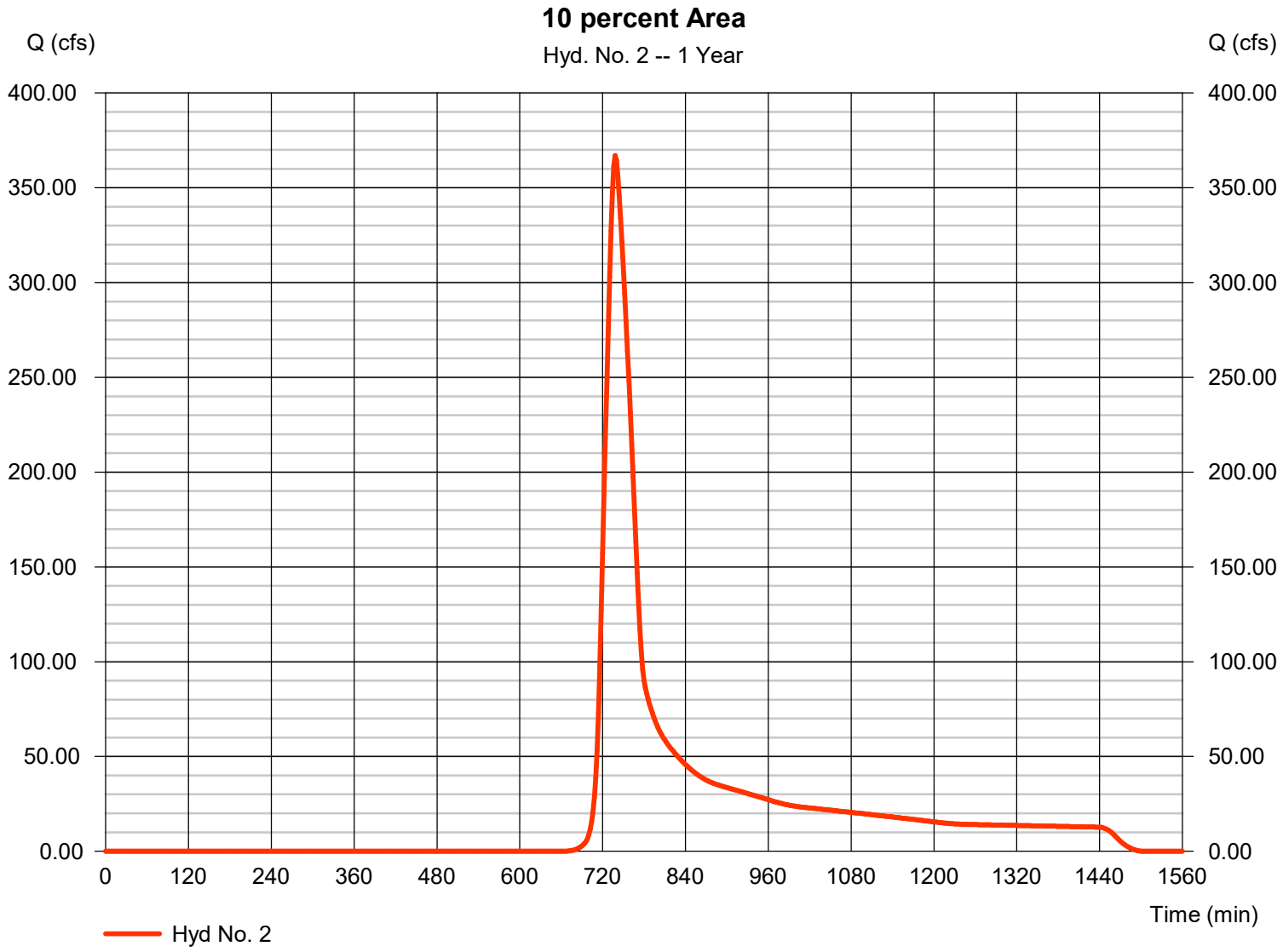
Hydrograph Report

Hyd. No. 2

10 percent Area

Hydrograph type	=	SCS Runoff	Peak discharge	=	367.03 cfs
Storm frequency	=	1 yrs	Time to peak	=	738 min
Time interval	=	2 min	Hyd. volume	=	1,949,289 cuft
Drainage area	=	531.000 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	38.00 min
Total precip.	=	3.33 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(60.000 x 55) + (20.000 x 77) + (250.500 x 61) + (83.500 x 80) + (117.000 x 98)] / 531.000



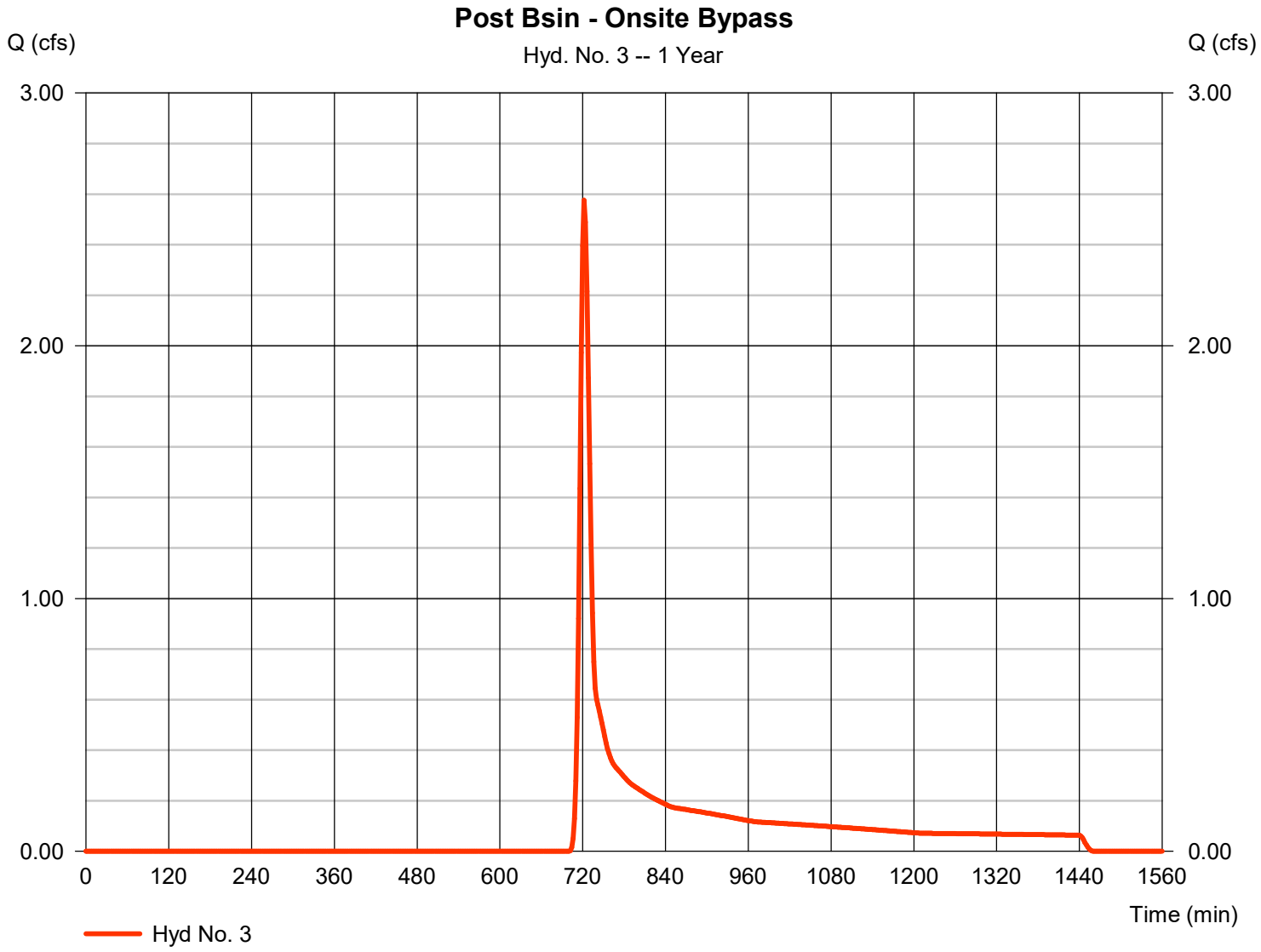
Hydrograph Report

Hyd. No. 3

Post Bsin - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.576 cfs
Storm frequency	=	1 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	7,973 cuft
Drainage area	=	3.430 ac	Curve number	=	64*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.33 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 55) + (1.740 x 77) + (0.570 x 61) + (0.010 x 98)] / 3.430



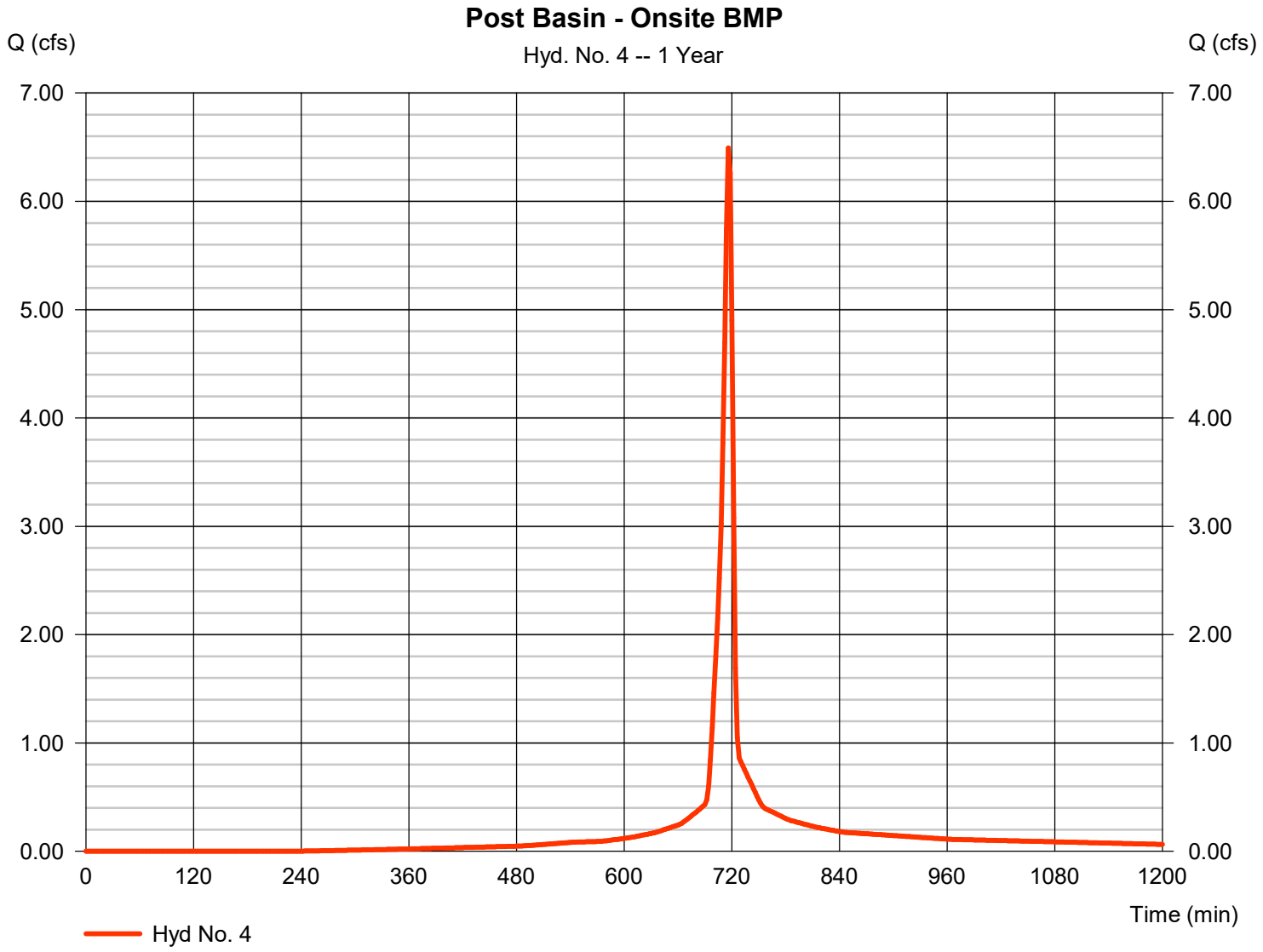
Hydrograph Report

Hyd. No. 4

Post Basin - Onsite BMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.492 cfs
Storm frequency	=	1 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	13,911 cuft
Drainage area	=	1.590 ac	Curve number	=	93*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.33 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.230 x 61) + (1.360 x 98)] / 1.590



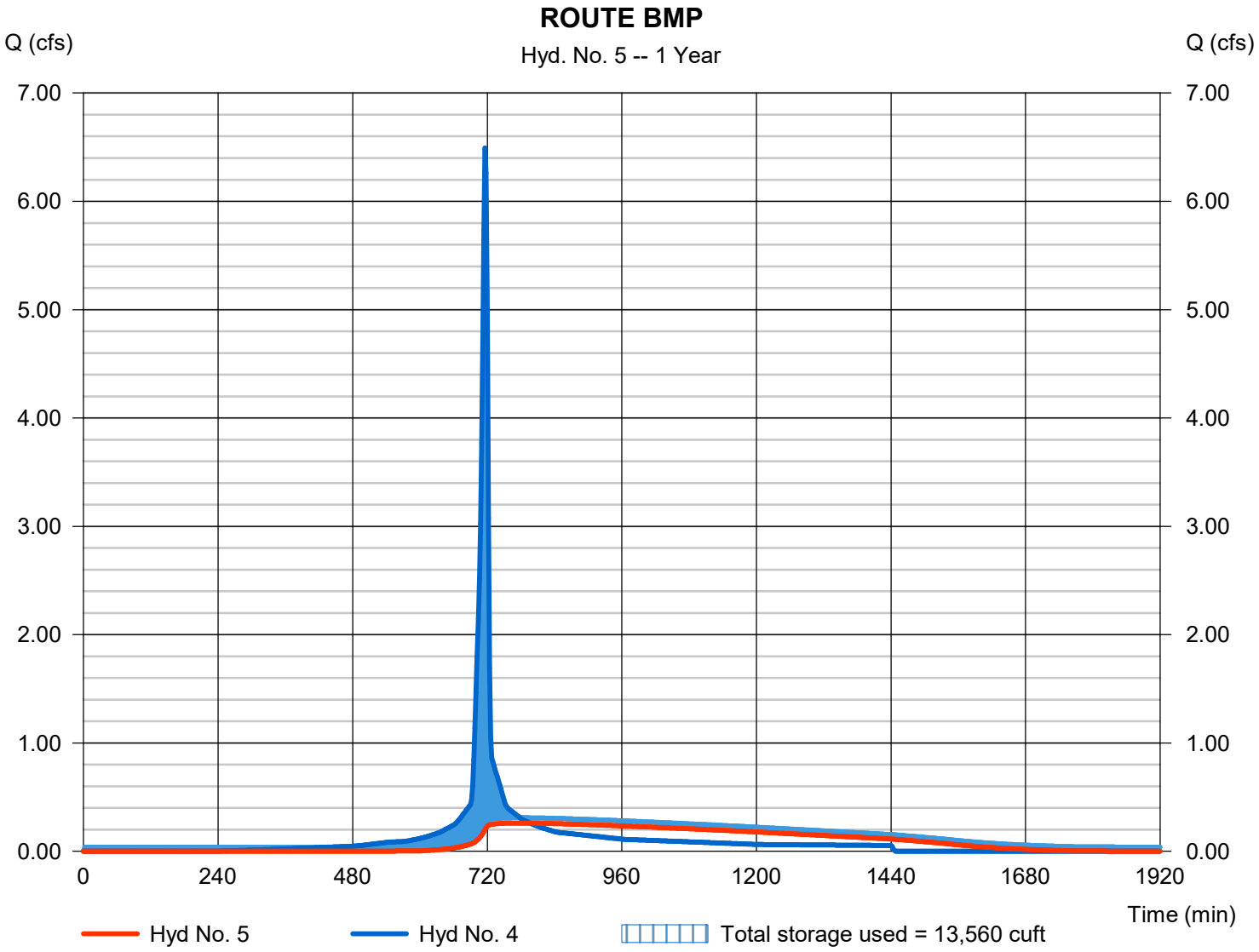
Hydrograph Report

Hyd. No. 5

ROUTE BMP

Hydrograph type	=	Reservoir	Peak discharge	=	0.260 cfs
Storm frequency	=	1 yrs	Time to peak	=	778 min
Time interval	=	2 min	Hyd. volume	=	10,031 cuft
Inflow hyd. No.	=	4 - Post Basin - Onsite BMP	Max. Elevation	=	1025.04 ft
Reservoir name	=	UGS - 48 inch	Max. Storage	=	13,560 cuft

Storage Indication method used. Wet pond routing start elevation = 1023.68 ft. Exfiltration extracted from Outflow.



Pond No. 1 - UGS - 48 inch

Pond Data

UG Chambers -Invert elev. = 1023.00 ft, Rise x Span = 4.00 x 4.00 ft, Barrel Len = 140.00 ft, No. Barrels = 8, Slope = 0.00%, Headers = Yes
Encasement -Invert elev. = 1022.00 ft, Width = 6.00 ft, Height = 6.00 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	1022.00	n/a	0	0
0.60	1022.60	n/a	1,751	1,751
1.20	1023.20	n/a	1,923	3,675
1.80	1023.80	n/a	2,886	6,561
2.40	1024.40	n/a	3,307	9,868
3.00	1025.00	n/a	3,475	13,343
3.60	1025.60	n/a	3,478	16,820
4.20	1026.20	n/a	3,304	20,125
4.80	1026.80	n/a	2,885	23,010
5.40	1027.40	n/a	1,922	24,932
6.00	1028.00	n/a	1,751	26,684

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 36.00	3.00	0.00	0.00
Span (in)	= 36.00	3.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 1022.00	1023.70	0.00	0.00
Length (ft)	= 60.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 6.00	1.17	0.00	0.00
Crest El. (ft)	= 1027.00	1026.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Rect	Rect	---	---
Multi-Stage	= Yes	Yes	No	No

Exfil.(in/hr) = 0.150 (by Wet area)
TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	1022.00	0.00	0.00	---	---	0.00	0.00	---	---	0.000	---	0.000
0.06	175	1022.06	0.00	0.00	---	---	0.00	0.00	---	---	0.025	---	0.025
0.12	350	1022.12	0.00	0.00	---	---	0.00	0.00	---	---	0.025	---	0.025
0.18	525	1022.18	0.00	0.00	---	---	0.00	0.00	---	---	0.026	---	0.026
0.24	701	1022.24	0.00	0.00	---	---	0.00	0.00	---	---	0.026	---	0.026
0.30	876	1022.30	0.00	0.00	---	---	0.00	0.00	---	---	0.027	---	0.027
0.36	1,051	1022.36	0.00	0.00	---	---	0.00	0.00	---	---	0.027	---	0.027
0.42	1,226	1022.42	0.00	0.00	---	---	0.00	0.00	---	---	0.028	---	0.028
0.48	1,401	1022.48	0.00	0.00	---	---	0.00	0.00	---	---	0.028	---	0.028
0.54	1,576	1022.54	0.00	0.00	---	---	0.00	0.00	---	---	0.029	---	0.029
0.60	1,751	1022.60	0.00	0.00	---	---	0.00	0.00	---	---	0.029	---	0.029
0.66	1,944	1022.66	0.00	0.00	---	---	0.00	0.00	---	---	0.030	---	0.030
0.72	2,136	1022.72	0.00	0.00	---	---	0.00	0.00	---	---	0.030	---	0.030
0.78	2,328	1022.78	0.00	0.00	---	---	0.00	0.00	---	---	0.031	---	0.031
0.84	2,521	1022.84	0.00	0.00	---	---	0.00	0.00	---	---	0.031	---	0.031
0.90	2,713	1022.90	0.00	0.00	---	---	0.00	0.00	---	---	0.032	---	0.032
0.96	2,905	1022.96	0.00	0.00	---	---	0.00	0.00	---	---	0.032	---	0.032
1.02	3,098	1023.02	0.00	0.00	---	---	0.00	0.00	---	---	0.033	---	0.033
1.08	3,290	1023.08	0.00	0.00	---	---	0.00	0.00	---	---	0.033	---	0.033
1.14	3,482	1023.14	0.00	0.00	---	---	0.00	0.00	---	---	0.034	---	0.034
1.20	3,675	1023.20	0.00	0.00	---	---	0.00	0.00	---	---	0.034	---	0.034
1.26	3,963	1023.26	0.00	0.00	---	---	0.00	0.00	---	---	0.035	---	0.035
1.32	4,252	1023.32	0.00	0.00	---	---	0.00	0.00	---	---	0.035	---	0.035
1.38	4,540	1023.38	0.00	0.00	---	---	0.00	0.00	---	---	0.036	---	0.036
1.44	4,829	1023.44	0.00	0.00	---	---	0.00	0.00	---	---	0.036	---	0.036
1.50	5,118	1023.50	0.00	0.00	---	---	0.00	0.00	---	---	0.036	---	0.036
1.56	5,406	1023.56	0.00	0.00	---	---	0.00	0.00	---	---	0.037	---	0.037
1.62	5,695	1023.62	0.00	0.00	---	---	0.00	0.00	---	---	0.037	---	0.037
1.68	5,983	1023.68	0.00	0.00	---	---	0.00	0.00	---	---	0.038	---	0.038
1.74	6,272	1023.74	0.00	0.00 ic	---	---	0.00	0.00	---	---	0.038	---	0.042
1.80	6,561	1023.80	0.00	0.02 ic	---	---	0.00	0.00	---	---	0.039	---	0.059
1.86	6,891	1023.86	0.00	0.05 ic	---	---	0.00	0.00	---	---	0.039	---	0.085

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UGS - 48 inch

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
1.92	7,222	1023.92	0.00	0.07 ic	---	---	0.00	0.00	---	---	0.040	---	0.113
1.98	7,553	1023.98	0.00	0.09 ic	---	---	0.00	0.00	---	---	0.040	---	0.133
2.04	7,883	1024.04	0.00	0.11 ic	---	---	0.00	0.00	---	---	0.041	---	0.150
2.10	8,214	1024.10	0.00	0.12 ic	---	---	0.00	0.00	---	---	0.041	---	0.165
2.16	8,545	1024.16	0.00	0.14 ic	---	---	0.00	0.00	---	---	0.042	---	0.179
2.22	8,876	1024.22	0.00	0.15 ic	---	---	0.00	0.00	---	---	0.042	---	0.191
2.28	9,206	1024.28	0.00	0.16 ic	---	---	0.00	0.00	---	---	0.043	---	0.202
2.34	9,537	1024.34	0.00	0.17 ic	---	---	0.00	0.00	---	---	0.043	---	0.213
2.40	9,868	1024.40	0.00	0.18 ic	---	---	0.00	0.00	---	---	0.044	---	0.223
2.46	10,215	1024.46	0.00	0.19 ic	---	---	0.00	0.00	---	---	0.044	---	0.233
2.52	10,563	1024.52	0.00	0.20 ic	---	---	0.00	0.00	---	---	0.045	---	0.242
2.58	10,910	1024.58	0.00	0.21 ic	---	---	0.00	0.00	---	---	0.045	---	0.251
2.64	11,258	1024.64	0.00	0.21 ic	---	---	0.00	0.00	---	---	0.046	---	0.259
2.70	11,605	1024.70	0.00	0.22 ic	---	---	0.00	0.00	---	---	0.046	---	0.267
2.76	11,953	1024.76	0.00	0.23 ic	---	---	0.00	0.00	---	---	0.047	---	0.275
2.82	12,300	1024.82	0.00	0.24 ic	---	---	0.00	0.00	---	---	0.047	---	0.283
2.88	12,648	1024.88	0.00	0.24 ic	---	---	0.00	0.00	---	---	0.048	---	0.290
2.94	12,995	1024.94	0.00	0.25 ic	---	---	0.00	0.00	---	---	0.048	---	0.298
3.00	13,343	1025.00	0.00	0.26 ic	---	---	0.00	0.00	---	---	0.049	---	0.305
3.06	13,691	1025.06	0.00	0.26 ic	---	---	0.00	0.00	---	---	0.049	---	0.312
3.12	14,038	1025.12	0.00	0.27 ic	---	---	0.00	0.00	---	---	0.050	---	0.319
3.18	14,386	1025.18	0.00	0.28 ic	---	---	0.00	0.00	---	---	0.050	---	0.325
3.24	14,734	1025.24	0.00	0.28 ic	---	---	0.00	0.00	---	---	0.051	---	0.332
3.30	15,082	1025.30	0.00	0.29 ic	---	---	0.00	0.00	---	---	0.051	---	0.338
3.36	15,429	1025.36	0.00	0.29 ic	---	---	0.00	0.00	---	---	0.052	---	0.344
3.42	15,777	1025.42	0.00	0.30 ic	---	---	0.00	0.00	---	---	0.052	---	0.351
3.48	16,125	1025.48	0.00	0.30 ic	---	---	0.00	0.00	---	---	0.053	---	0.357
3.54	16,473	1025.54	0.00	0.31 ic	---	---	0.00	0.00	---	---	0.053	---	0.363
3.60	16,820	1025.60	0.00	0.31 ic	---	---	0.00	0.00	---	---	0.054	---	0.368
3.66	17,151	1025.66	0.00	0.32 ic	---	---	0.00	0.00	---	---	0.054	---	0.374
3.72	17,481	1025.72	0.00	0.33 ic	---	---	0.00	0.00	---	---	0.055	---	0.380
3.78	17,812	1025.78	0.00	0.33 ic	---	---	0.00	0.00	---	---	0.055	---	0.385
3.84	18,142	1025.84	0.00	0.34 ic	---	---	0.00	0.00	---	---	0.055	---	0.391
3.90	18,472	1025.90	0.00	0.34 ic	---	---	0.00	0.00	---	---	0.056	---	0.396
3.96	18,803	1025.96	0.00	0.35 ic	---	---	0.00	0.00	---	---	0.056	---	0.402
4.02	19,133	1026.02	0.01 ic	0.35 ic	---	---	0.00	0.01	---	---	0.057	---	0.418
4.08	19,464	1026.08	0.10 ic	0.35 ic	---	---	0.00	0.09	---	---	0.057	---	0.500
4.14	19,794	1026.14	0.21 ic	0.36 ic	---	---	0.00	0.21	---	---	0.058	---	0.624
4.20	20,125	1026.20	0.37 ic	0.36 ic	---	---	0.00	0.35	---	---	0.058	---	0.771
4.26	20,413	1026.26	0.55 ic	0.37 ic	---	---	0.00	0.52	---	---	0.059	---	0.944
4.32	20,702	1026.32	0.74 ic	0.37 ic	---	---	0.00	0.71	---	---	0.059	---	1.138
4.38	20,990	1026.38	0.96 ic	0.38 ic	---	---	0.00	0.91	---	---	0.060	---	1.350
4.44	21,279	1026.44	1.14 ic	0.38 ic	---	---	0.00	1.14	---	---	0.060	---	1.579
4.50	21,567	1026.50	1.42 ic	0.39 ic	---	---	0.00	1.38	---	---	0.061	---	1.825
4.56	21,856	1026.56	1.64 ic	0.39 ic	---	---	0.00	1.63	---	---	0.061	---	2.085
4.62	22,144	1026.62	1.90 ic	0.40 ic	---	---	0.00	1.90	---	---	0.062	---	2.359
4.68	22,433	1026.68	2.19 ic	0.40 ic	---	---	0.00	2.18	---	---	0.062	---	2.647
4.74	22,721	1026.74	2.48 ic	0.40 ic	---	---	0.00	2.48	---	---	0.063	---	2.946
4.80	23,010	1026.80	2.79 ic	0.41 ic	---	---	0.00	2.79	---	---	0.063	---	3.259
4.86	23,202	1026.86	3.11 ic	0.41 ic	---	---	0.00	3.11	---	---	0.064	---	3.583
4.92	23,394	1026.92	3.48 ic	0.42 ic	---	---	0.00	3.44	---	---	0.064	---	3.918
4.98	23,587	1026.98	3.88 ic	0.42 ic	---	---	0.00	3.78	---	---	0.065	---	4.264
5.04	23,779	1027.04	4.31 ic	0.42 ic	---	---	0.16	4.13	---	---	0.065	---	4.781
5.10	23,971	1027.10	5.24 ic	0.43 ic	---	---	0.63	4.49	---	---	0.066	---	5.620
5.16	24,163	1027.16	6.28 ic	0.43 ic	---	---	1.28	4.87	---	---	0.066	---	6.645
5.22	24,356	1027.22	7.43 ic	0.44 ic	---	---	2.06	5.25	---	---	0.067	---	7.813
5.28	24,548	1027.28	8.68 ic	0.44 ic	---	---	2.98	5.65	---	---	0.067	---	9.132
5.34	24,740	1027.34	10.04 ic	0.44 ic	---	---	3.98	6.05	---	---	0.068	---	10.54
5.40	24,932	1027.40	11.51 ic	0.45 ic	---	---	5.06	6.45	---	---	0.068	---	12.02
5.46	25,108	1027.46	13.11 ic	0.45 ic	---	---	6.23	6.87	---	---	0.069	---	13.62
5.52	25,283	1027.52	15.03 ic	0.45 ic	---	---	7.49	7.30	---	---	0.069	---	15.32
5.58	25,458	1027.58	16.71 ic	0.46 ic	---	---	8.82	7.74	---	---	0.070	---	17.09
5.64	25,633	1027.64	18.43 ic	0.46 ic	---	---	10.23	8.18	---	---	0.070	---	18.94
5.70	25,808	1027.70	20.49 oc	0.47 ic	---	---	11.70	8.64	---	---	0.071	---	20.87
5.76	25,983	1027.76	22.37 oc	0.47 ic	---	---	13.24	9.10	---	---	0.071	---	22.88
5.82	26,158	1027.82	24.42 oc	0.47 ic	---	---	14.83	9.57	---	---	0.072	---	24.94
5.88	26,333	1027.88	26.74 oc	0.48 ic	---	---	16.49	10.04	---	---	0.072	---	27.08
5.94	26,509	1027.94	28.82 oc	0.48 ic	---	---	18.24	10.54	---	---	0.073	---	29.33
6.00	26,684	1028.00	31.08 oc	0.48 ic	---	---	19.98	11.02	---	---	0.073	---	31.56

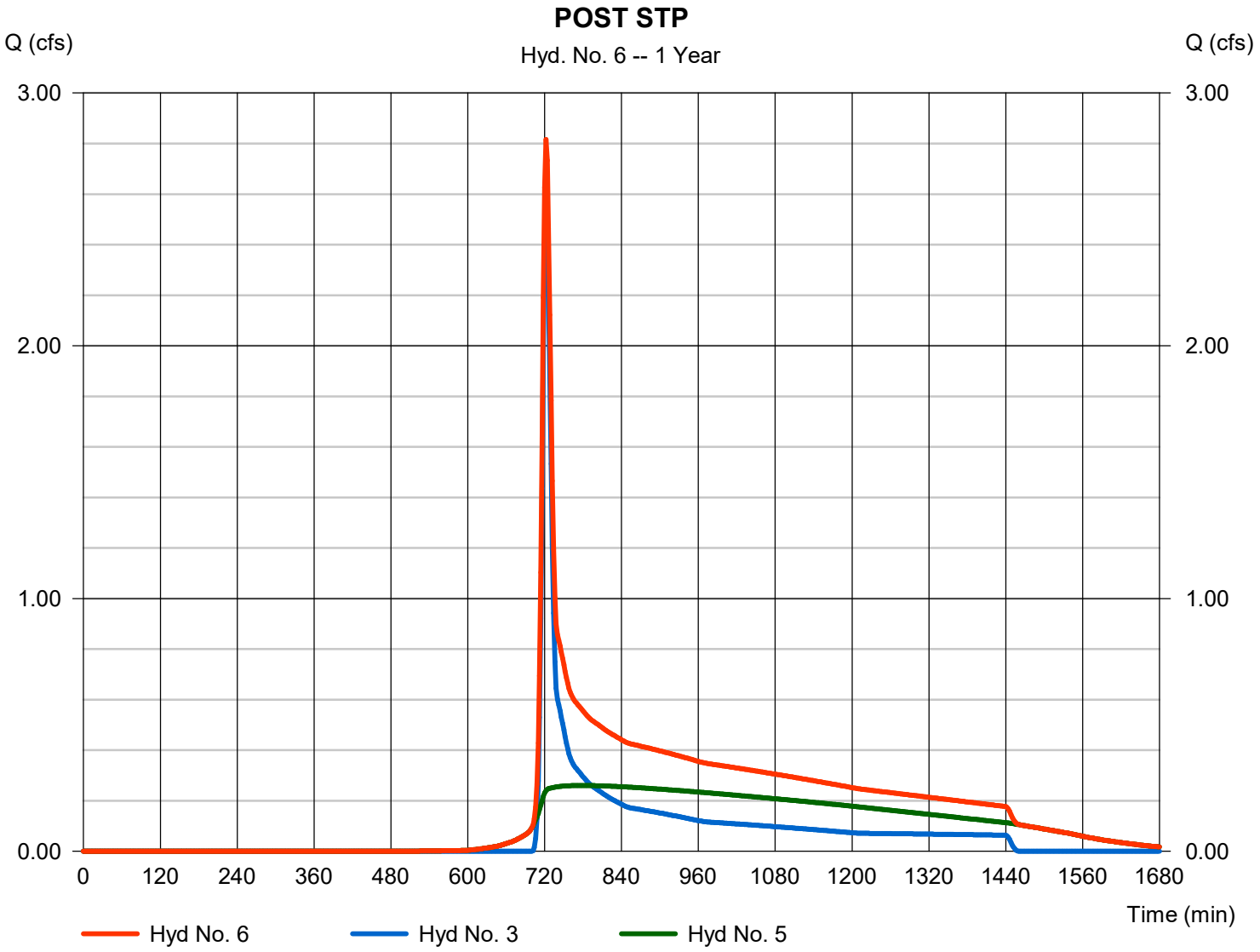
...End

Hydrograph Report

Hyd. No. 6

POST STP

Hydrograph type	=	Combine	Peak discharge	=	2.816 cfs
Storm frequency	=	1 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	18,004 cuft
Inflow hyds.	=	3, 5	Contrib. drain. area	=	3.430 ac

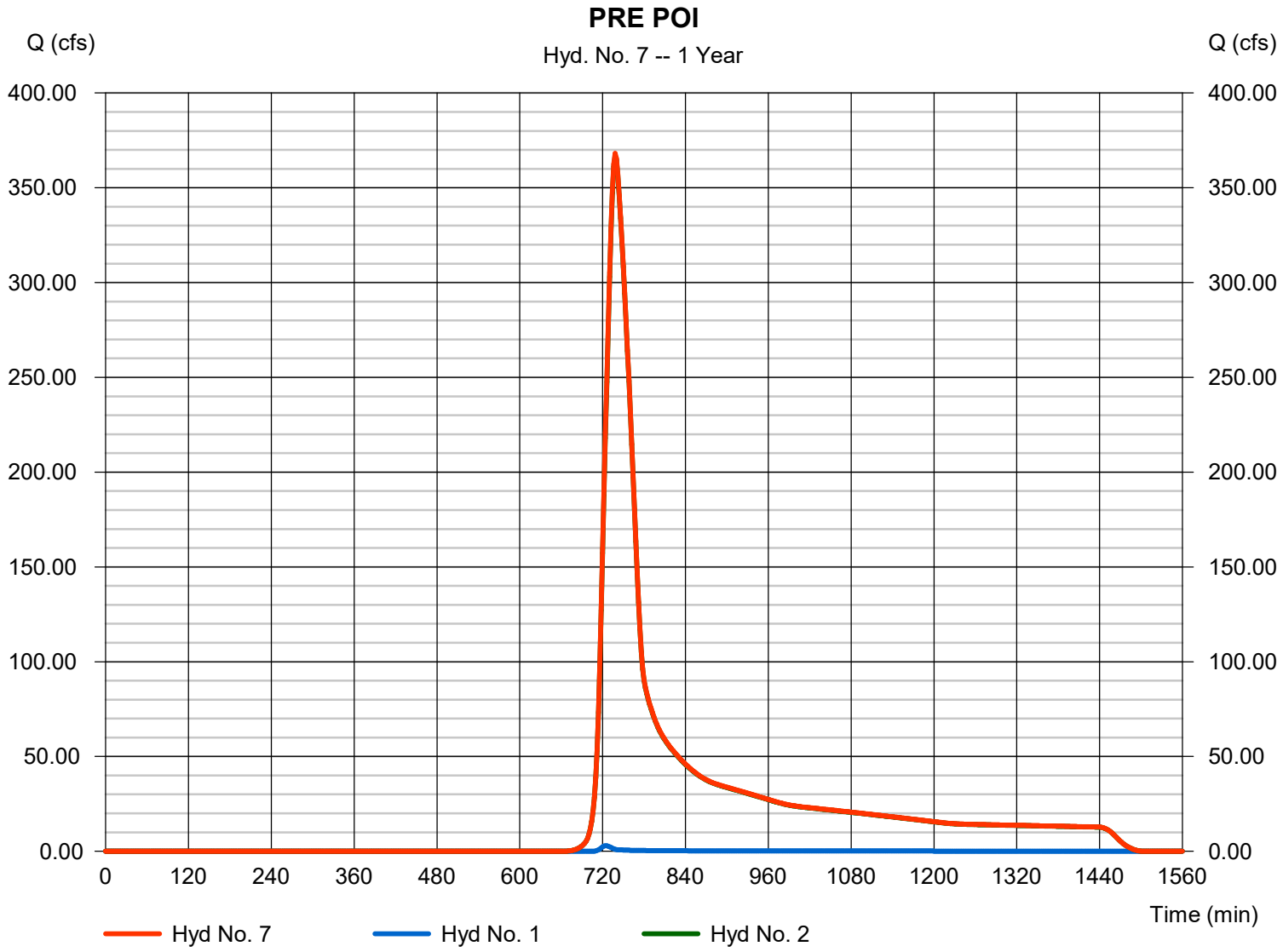


Hydrograph Report

Hyd. No. 7

PRE POI

Hydrograph type	=	Combine	Peak discharge	=	368.12 cfs
Storm frequency	=	1 yrs	Time to peak	=	738 min
Time interval	=	2 min	Hyd. volume	=	1,959,568 cuft
Inflow hyds.	=	1, 2	Contrib. drain. area	=	536.020 ac

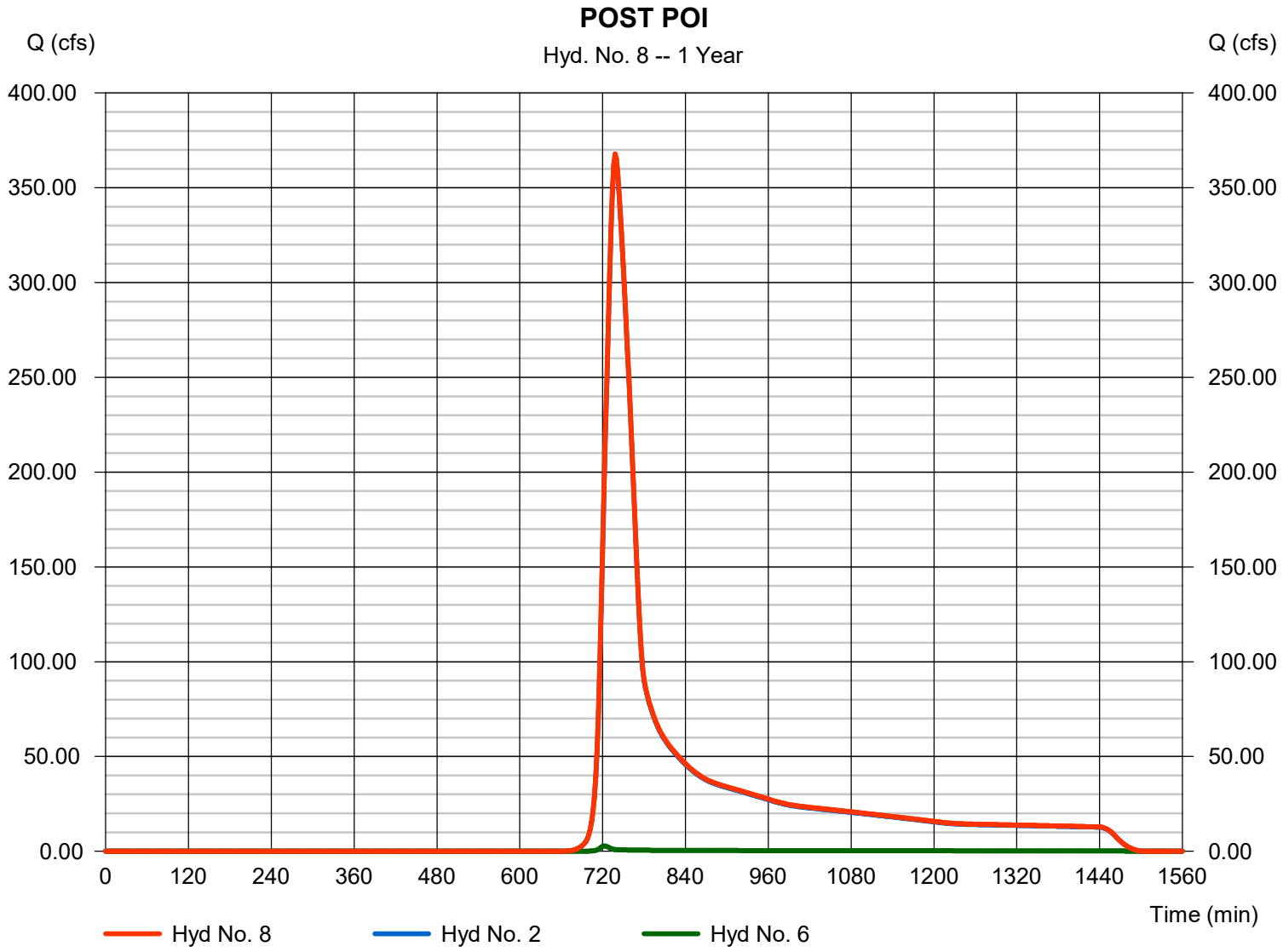


Hydrograph Report

Hyd. No. 8

POST POI

Hydrograph type	= Combine	Peak discharge	= 367.93 cfs
Storm frequency	= 1 yrs	Time to peak	= 738 min
Time interval	= 2 min	Hyd. volume	= 1,967,292 cuft
Inflow hyds.	= 2, 6	Contrib. drain. area	= 531.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	4.347	2	724	14,132	------	------	------	Pre Basin - Onsite STP
2	SCS Runoff	487.52	2	738	2,508,015	------	------	------	10 percent Area
3	SCS Runoff	3.764	2	722	10,862	------	------	------	Post Bsin - Onsite Bypass
4	SCS Runoff	7.494	2	716	16,213	------	------	------	Post Basin - Onsite BMP
5	Reservoir	0.285	2	782	11,978	4	1025.28	14,973	ROUTE BMP
6	Combine	4.027	2	722	22,840	3, 5	------	------	POST STP
7	Combine	489.02	2	738	2,522,144	1, 2,	------	------	PRE POI
8	Combine	488.66	2	738	2,530,850	2, 6,	------	------	POST POI

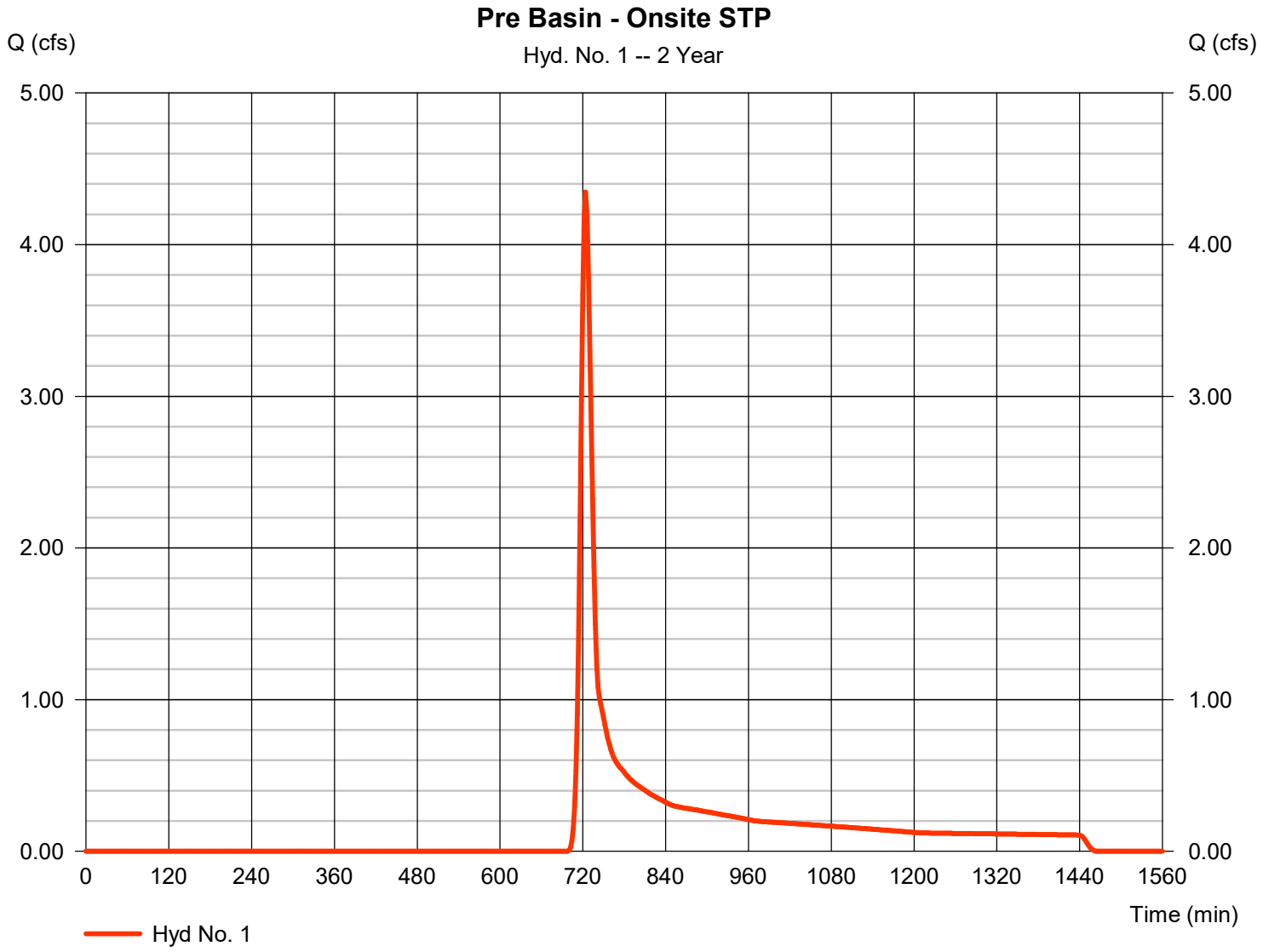
Hydrograph Report

Hyd. No. 1

Pre Basin - Onsite STP

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.347 cfs
Storm frequency	=	2 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	14,132 cuft
Drainage area	=	5.020 ac	Curve number	=	63*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.00 min
Total precip.	=	3.77 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.290 x 55) + (1.730 x 77)] / 5.020



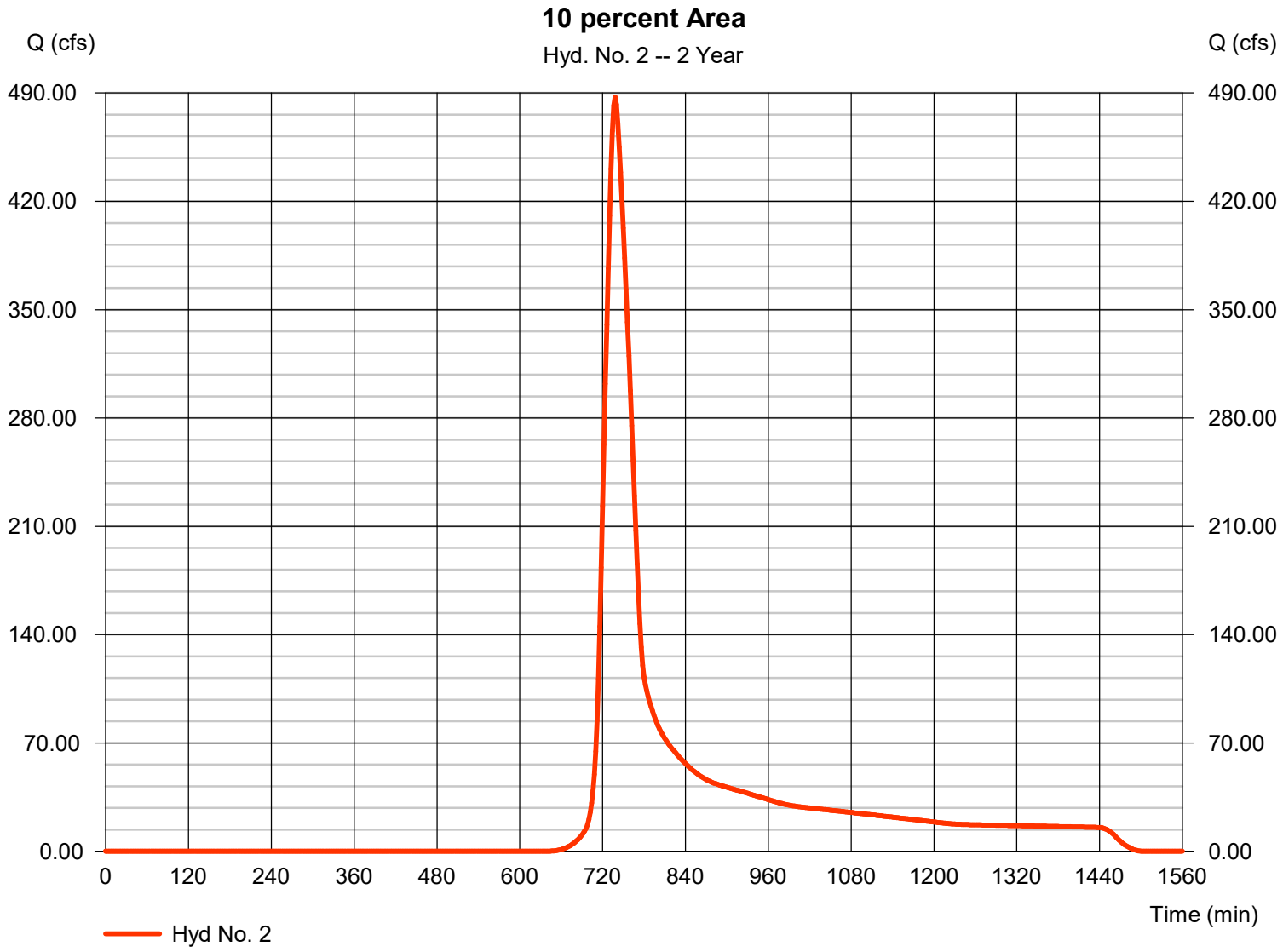
Hydrograph Report

Hyd. No. 2

10 percent Area

Hydrograph type	=	SCS Runoff	Peak discharge	=	487.52 cfs
Storm frequency	=	2 yrs	Time to peak	=	738 min
Time interval	=	2 min	Hyd. volume	=	2,508,015 cuft
Drainage area	=	531.000 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	38.00 min
Total precip.	=	3.77 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(60.000 x 55) + (20.000 x 77) + (250.500 x 61) + (83.500 x 80) + (117.000 x 98)] / 531.000



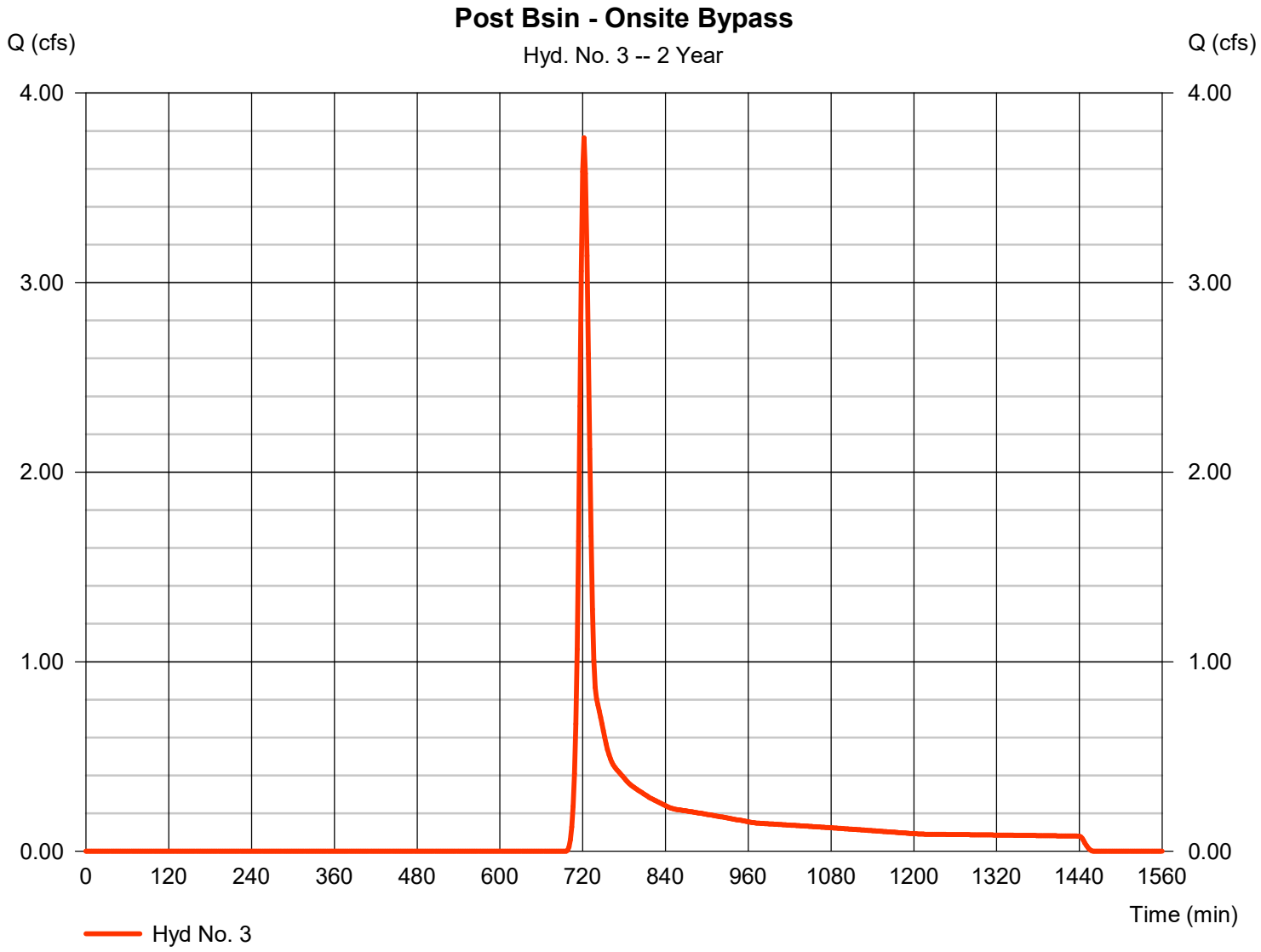
Hydrograph Report

Hyd. No. 3

Post Bsin - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.764 cfs
Storm frequency	=	2 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	10,862 cuft
Drainage area	=	3.430 ac	Curve number	=	64*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	3.77 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 55) + (1.740 x 77) + (0.570 x 61) + (0.010 x 98)] / 3.430



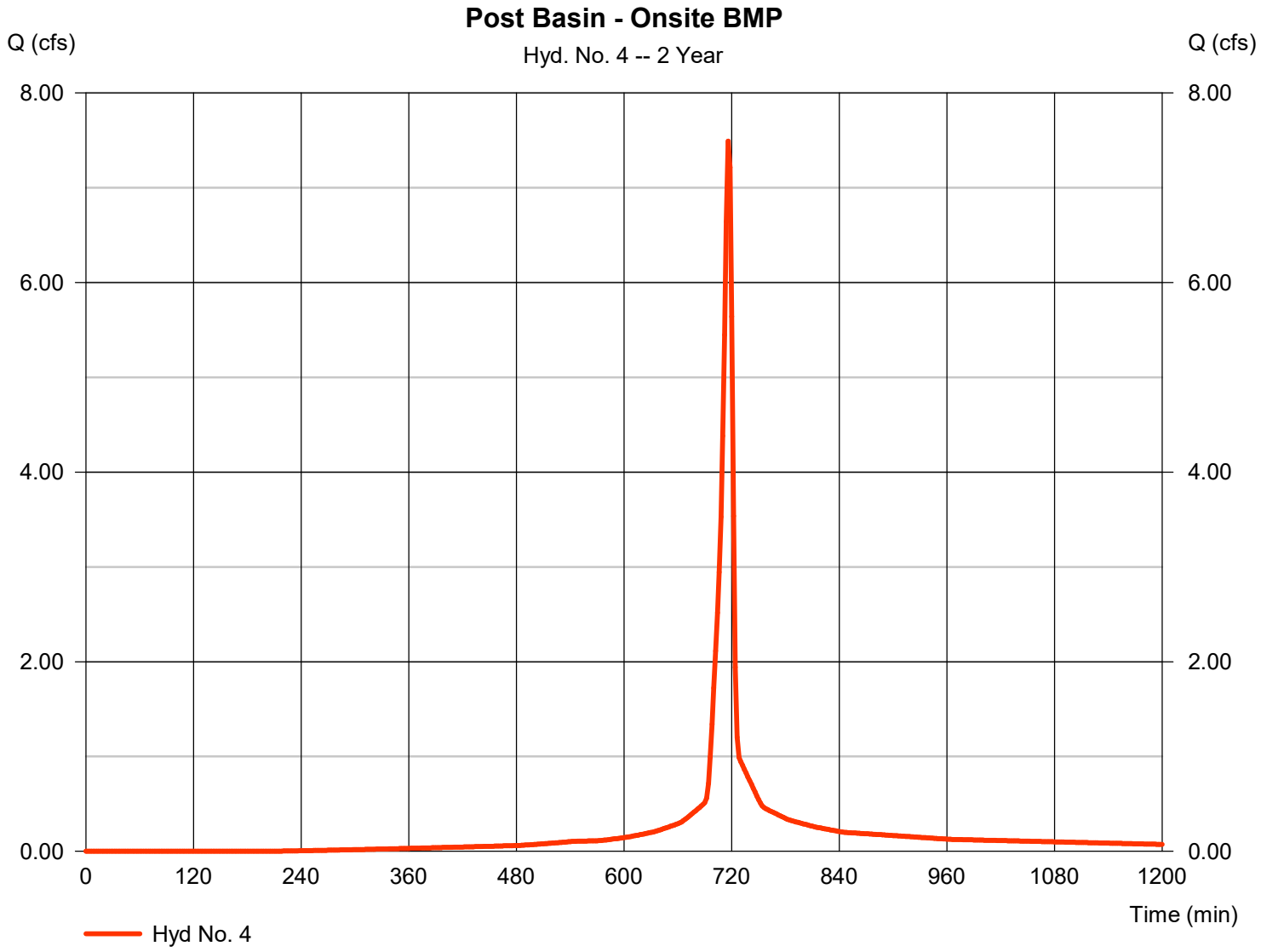
Hydrograph Report

Hyd. No. 4

Post Basin - Onsite BMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.494 cfs
Storm frequency	=	2 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	16,213 cuft
Drainage area	=	1.590 ac	Curve number	=	93*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	3.77 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.230 x 61) + (1.360 x 98)] / 1.590



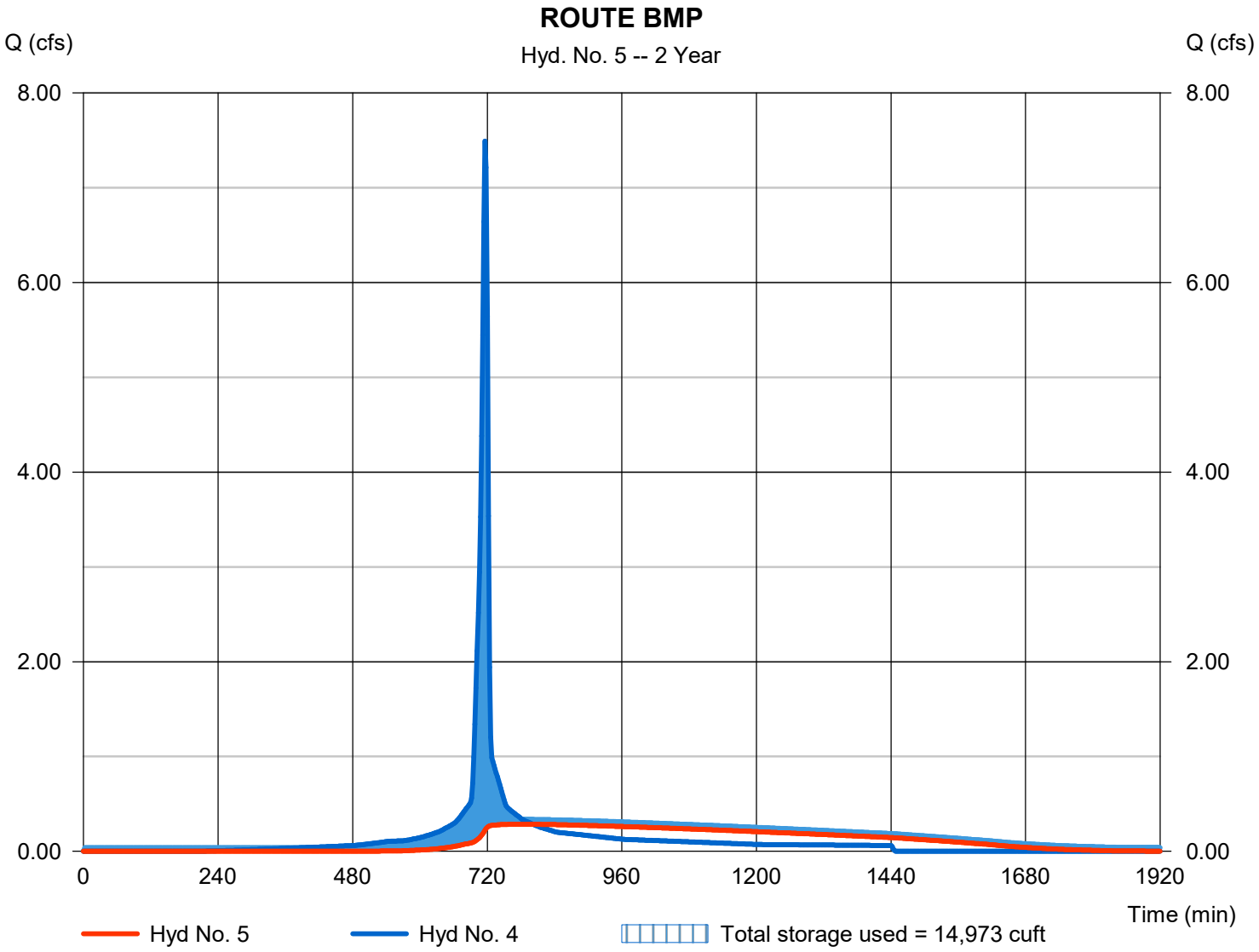
Hydrograph Report

Hyd. No. 5

ROUTE BMP

Hydrograph type	=	Reservoir	Peak discharge	=	0.285 cfs
Storm frequency	=	2 yrs	Time to peak	=	782 min
Time interval	=	2 min	Hyd. volume	=	11,978 cuft
Inflow hyd. No.	=	4 - Post Basin - Onsite BMP	Max. Elevation	=	1025.28 ft
Reservoir name	=	UGS - 48 inch	Max. Storage	=	14,973 cuft

Storage Indication method used. Wet pond routing start elevation = 1023.68 ft. Exfiltration extracted from Outflow.

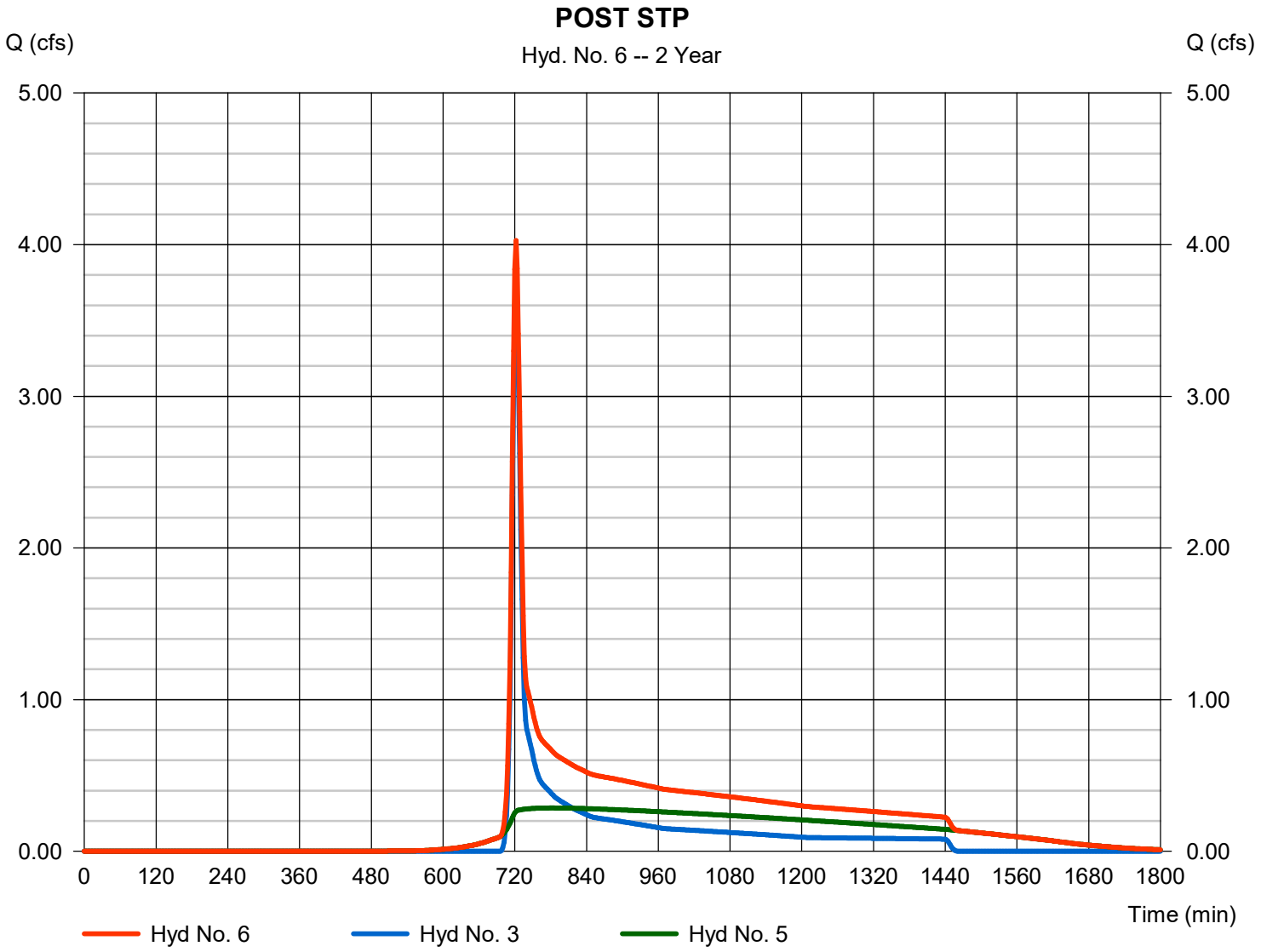


Hydrograph Report

Hyd. No. 6

POST STP

Hydrograph type	=	Combine	Peak discharge	=	4.027 cfs
Storm frequency	=	2 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	22,840 cuft
Inflow hyds.	=	3, 5	Contrib. drain. area	=	3.430 ac

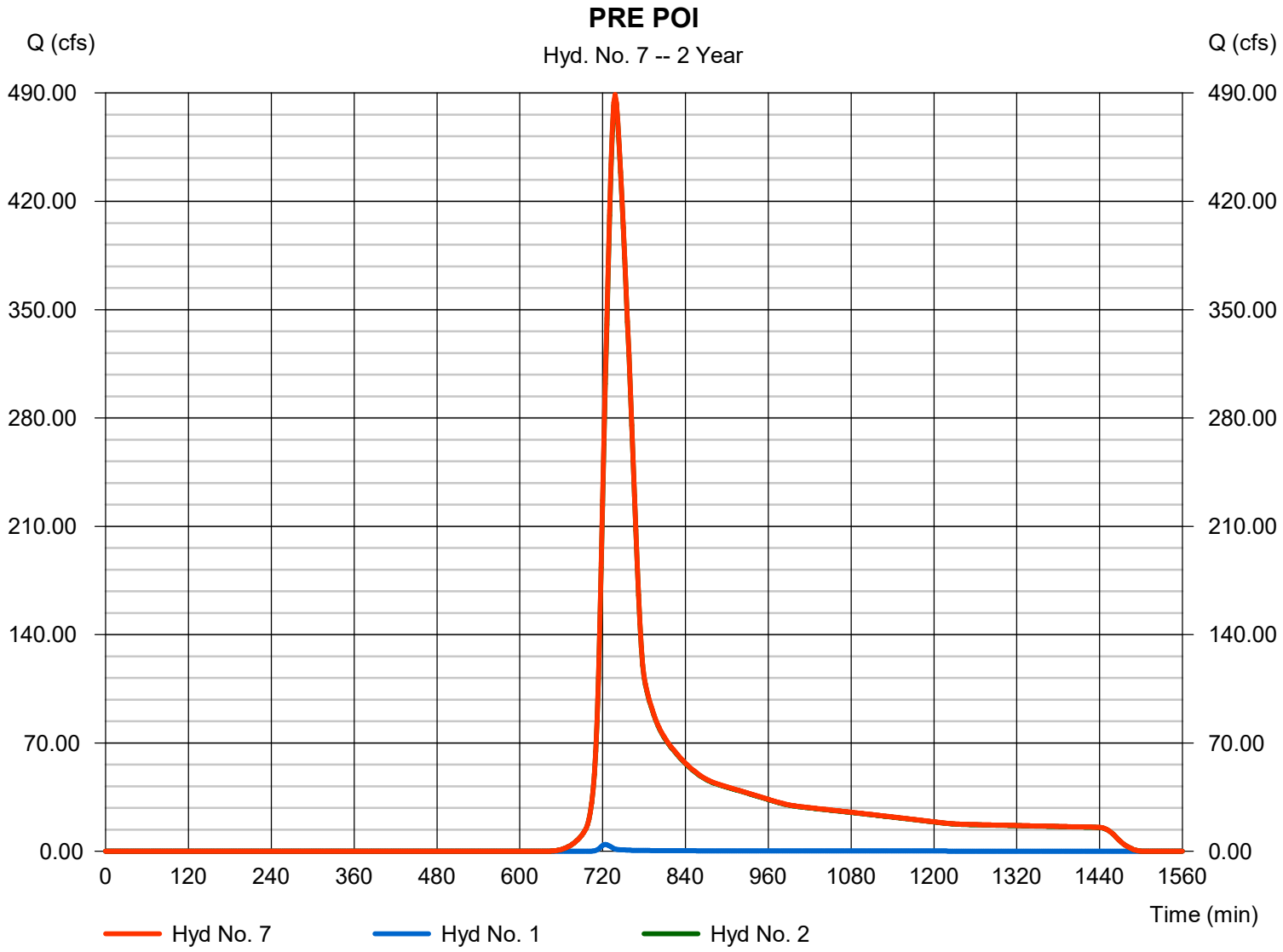


Hydrograph Report

Hyd. No. 7

PRE POI

Hydrograph type	= Combine	Peak discharge	= 489.02 cfs
Storm frequency	= 2 yrs	Time to peak	= 738 min
Time interval	= 2 min	Hyd. volume	= 2,522,144 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 536.020 ac

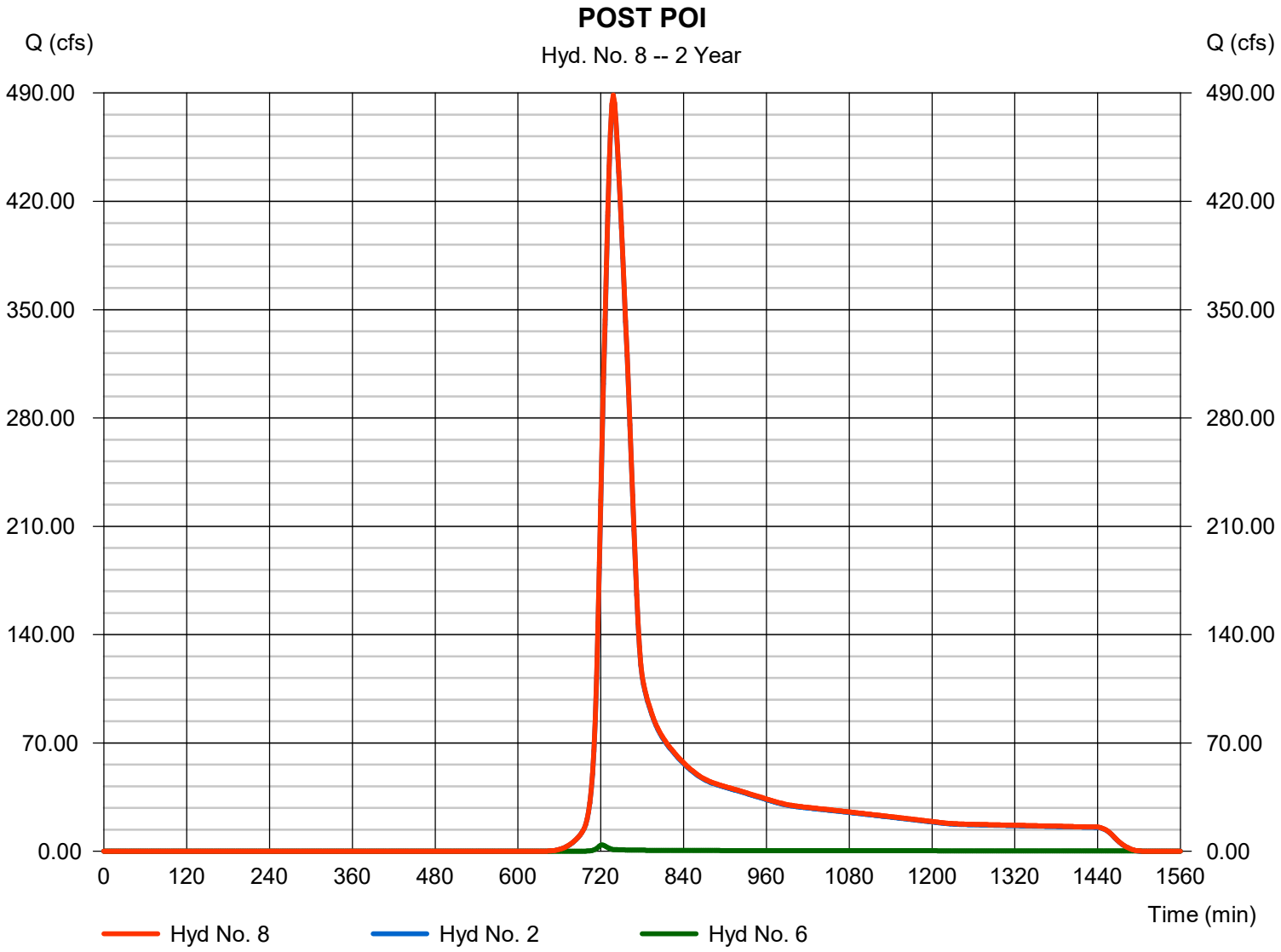


Hydrograph Report

Hyd. No. 8

POST POI

Hydrograph type	= Combine	Peak discharge	= 488.66 cfs
Storm frequency	= 2 yrs	Time to peak	= 738 min
Time interval	= 2 min	Hyd. volume	= 2,530,850 cuft
Inflow hyds.	= 2, 6	Contrib. drain. area	= 531.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	7.044	2	724	21,359	------	------	------	Pre Basin - Onsite STP
2	SCS Runoff	702.19	2	738	3,508,792	------	------	------	10 percent Area
3	SCS Runoff	5.948	2	722	16,251	------	------	------	Post Bsin - Onsite Bypass
4	SCS Runoff	9.145	2	716	20,063	------	------	------	Post Basin - Onsite BMP
5	Reservoir	0.323	2	790	15,268	4	1025.70	17,362	ROUTE BMP
6	Combine	6.245	2	722	31,518	3, 5	------	------	POST STP
7	Combine	704.41	2	738	3,530,147	1, 2,	------	------	PRE POI
8	Combine	703.76	2	738	3,540,305	2, 6,	------	------	POST POI

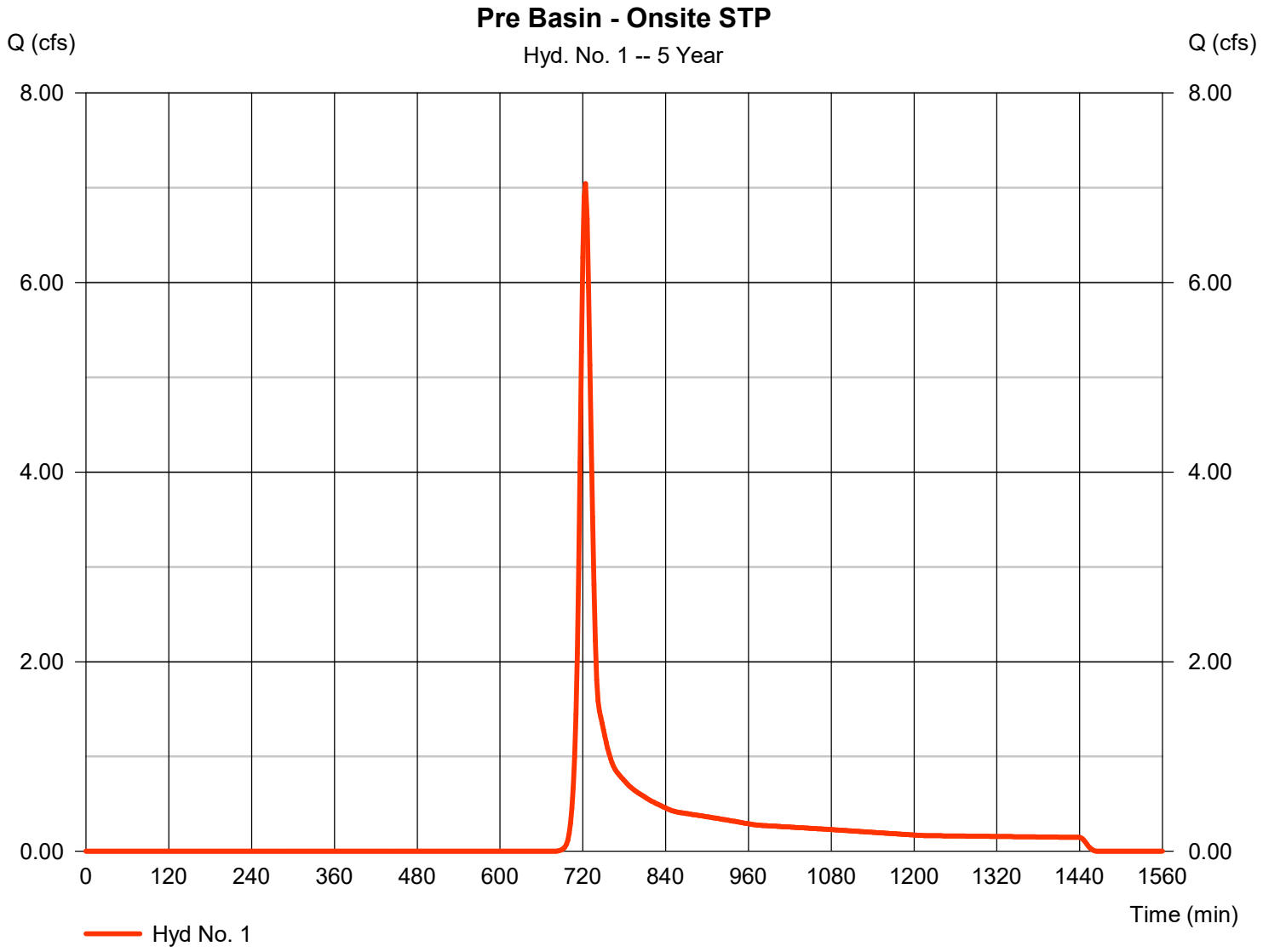
Hydrograph Report

Hyd. No. 1

Pre Basin - Onsite STP

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.044 cfs
Storm frequency	=	5 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	21,359 cuft
Drainage area	=	5.020 ac	Curve number	=	63*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.00 min
Total precip.	=	4.50 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.290 x 55) + (1.730 x 77)] / 5.020



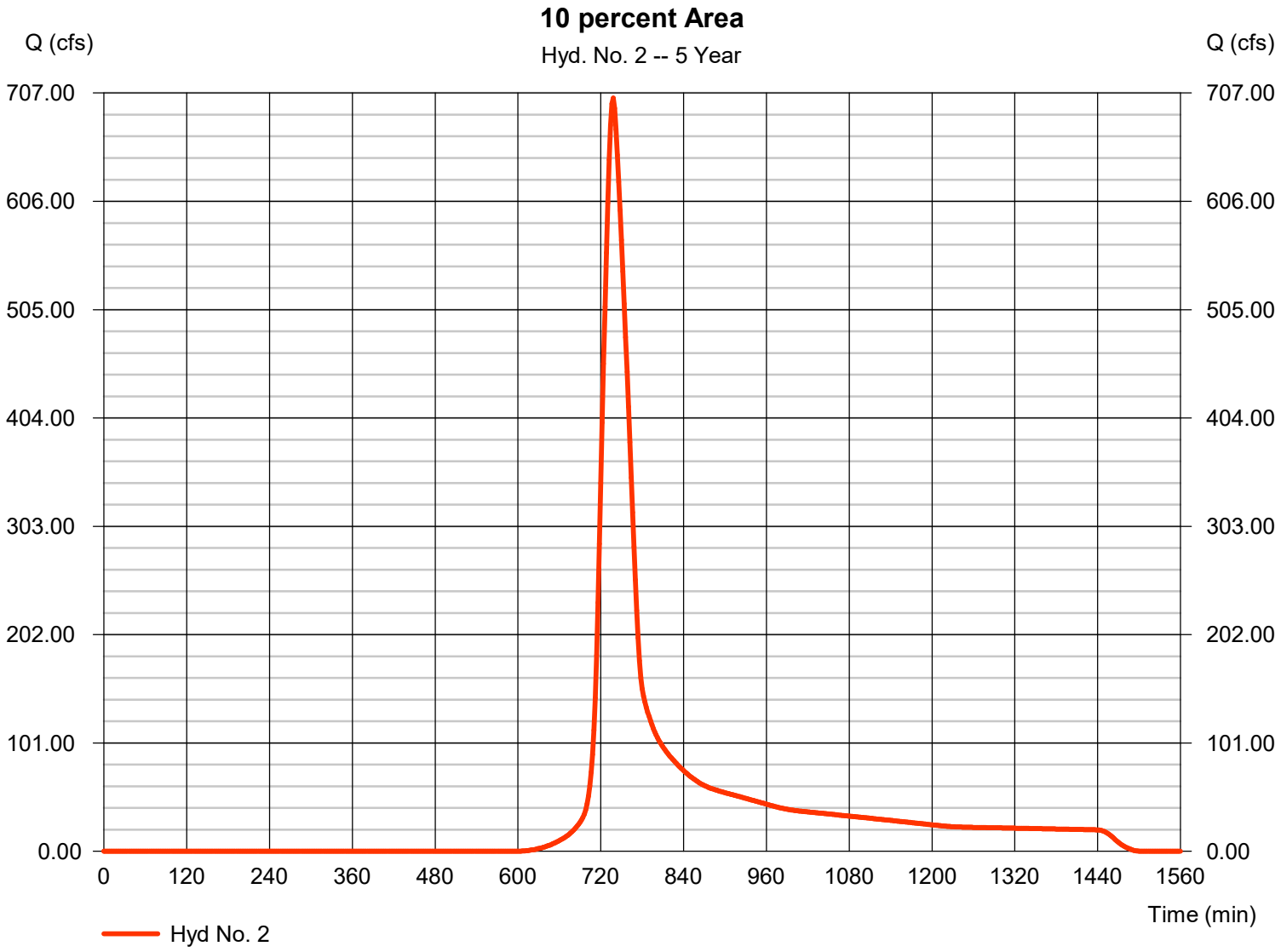
Hydrograph Report

Hyd. No. 2

10 percent Area

Hydrograph type	=	SCS Runoff	Peak discharge	=	702.19 cfs
Storm frequency	=	5 yrs	Time to peak	=	738 min
Time interval	=	2 min	Hyd. volume	=	3,508,792 cuft
Drainage area	=	531.000 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	38.00 min
Total precip.	=	4.50 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(60.000 x 55) + (20.000 x 77) + (250.500 x 61) + (83.500 x 80) + (117.000 x 98)] / 531.000



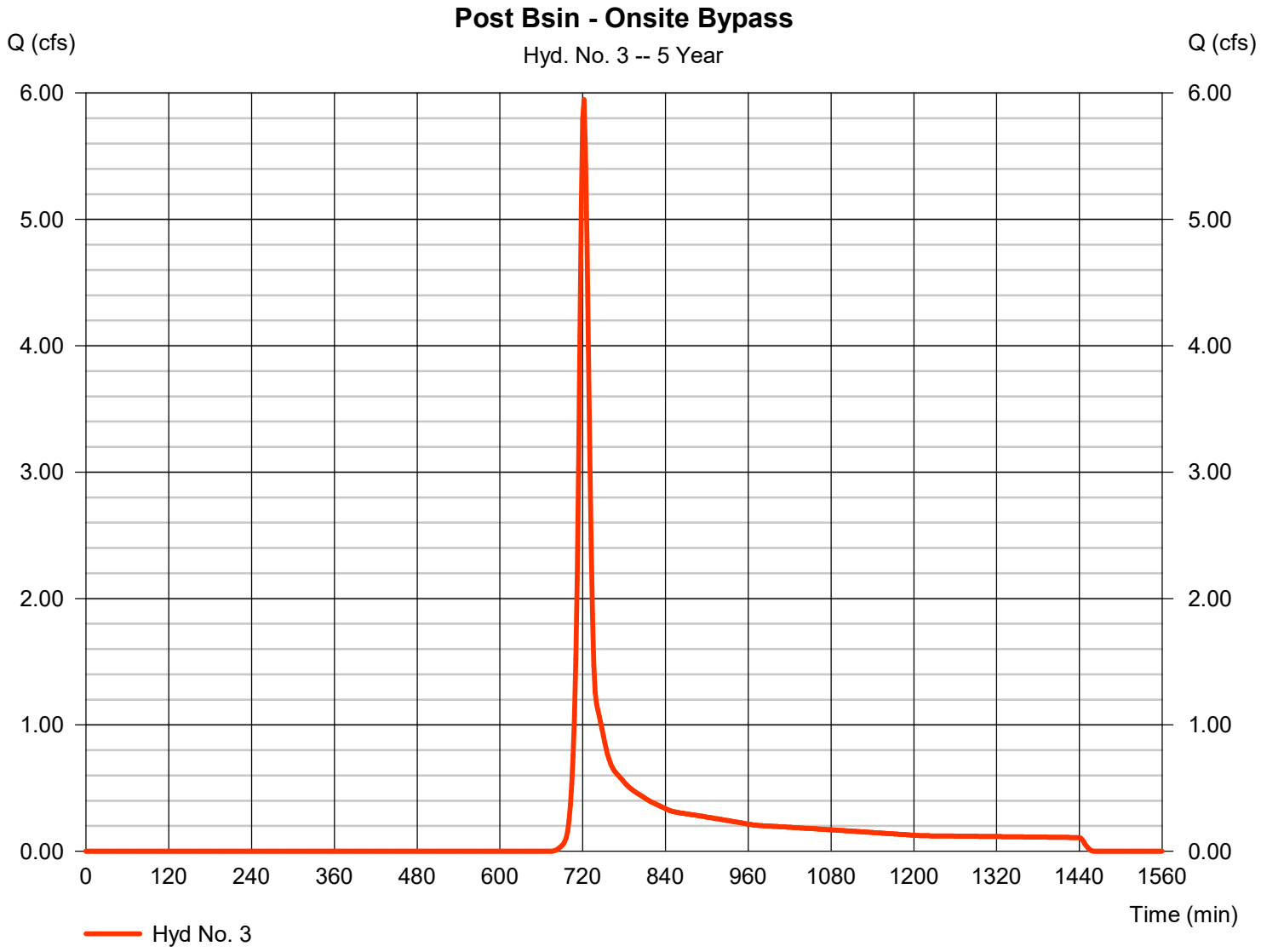
Hydrograph Report

Hyd. No. 3

Post Bsin - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.948 cfs
Storm frequency	=	5 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	16,251 cuft
Drainage area	=	3.430 ac	Curve number	=	64*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	4.50 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 55) + (1.740 x 77) + (0.570 x 61) + (0.010 x 98)] / 3.430



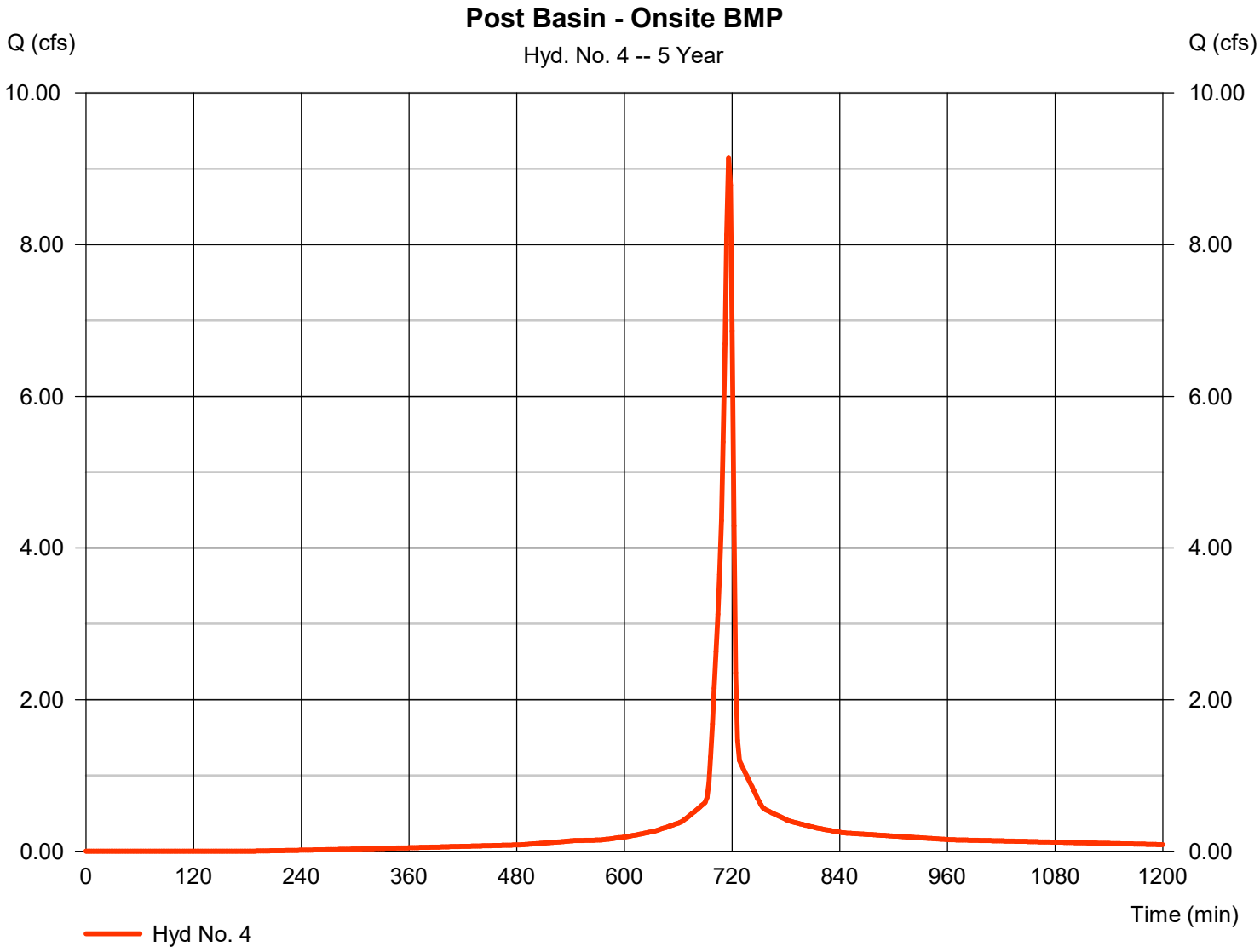
Hydrograph Report

Hyd. No. 4

Post Basin - Onsite BMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.145 cfs
Storm frequency	=	5 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	20,063 cuft
Drainage area	=	1.590 ac	Curve number	=	93*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	4.50 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.230 x 61) + (1.360 x 98)] / 1.590



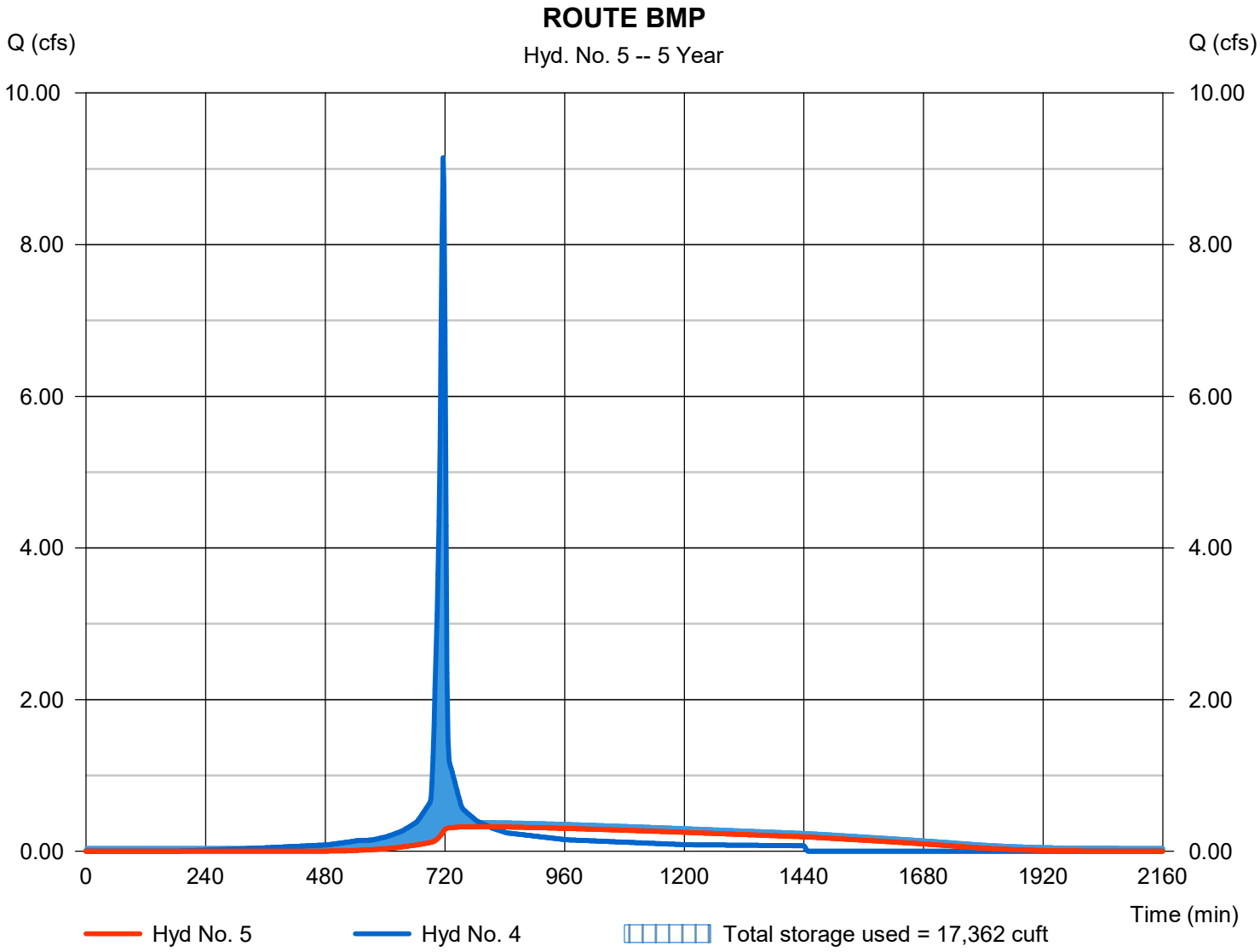
Hydrograph Report

Hyd. No. 5

ROUTE BMP

Hydrograph type	=	Reservoir	Peak discharge	=	0.323 cfs
Storm frequency	=	5 yrs	Time to peak	=	790 min
Time interval	=	2 min	Hyd. volume	=	15,268 cuft
Inflow hyd. No.	=	4 - Post Basin - Onsite BMP	Max. Elevation	=	1025.70 ft
Reservoir name	=	UGS - 48 inch	Max. Storage	=	17,362 cuft

Storage Indication method used. Wet pond routing start elevation = 1023.68 ft. Exfiltration extracted from Outflow.

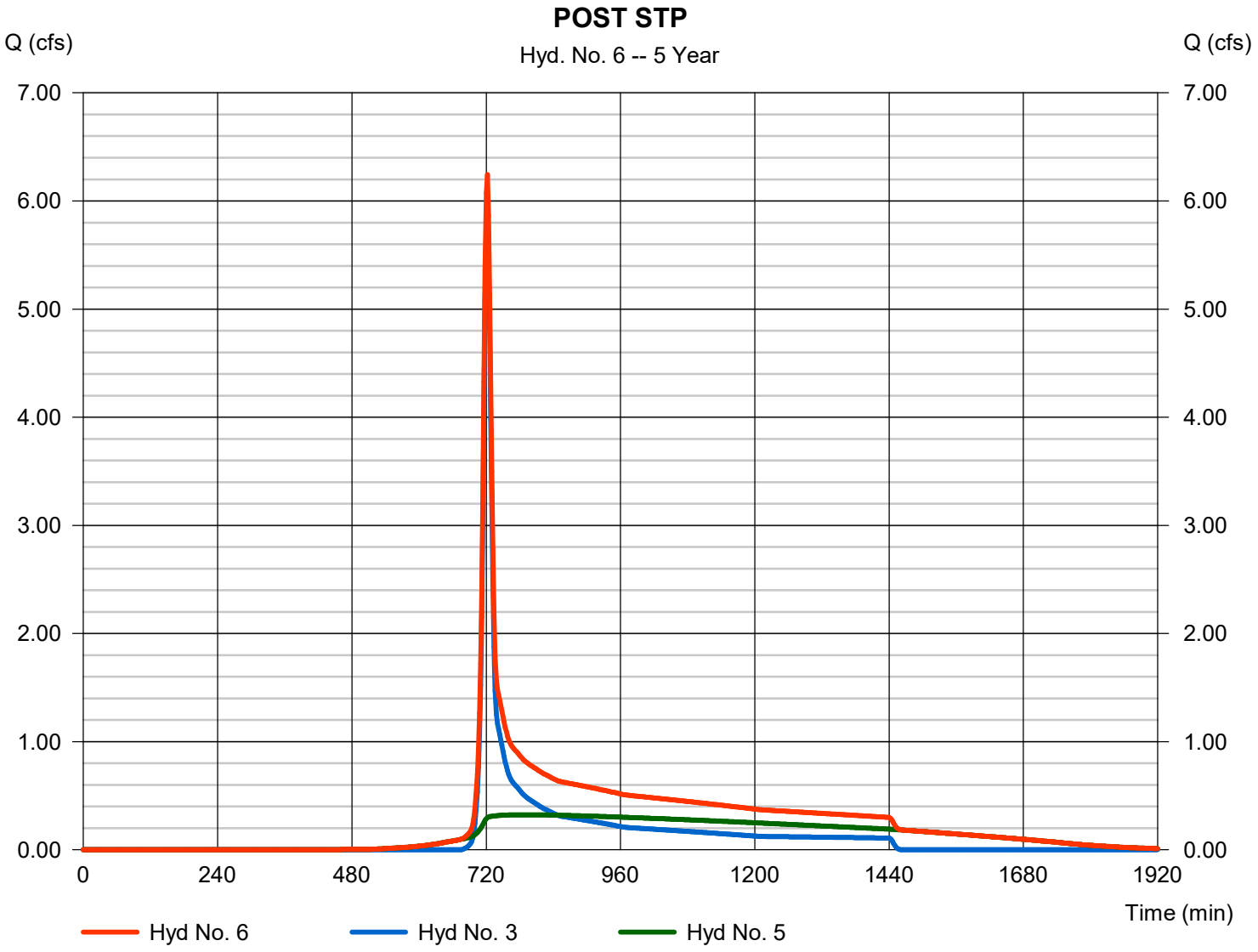


Hydrograph Report

Hyd. No. 6

POST STP

Hydrograph type	=	Combine	Peak discharge	=	6.245 cfs
Storm frequency	=	5 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	31,518 cuft
Inflow hyds.	=	3, 5	Contrib. drain. area	=	3.430 ac

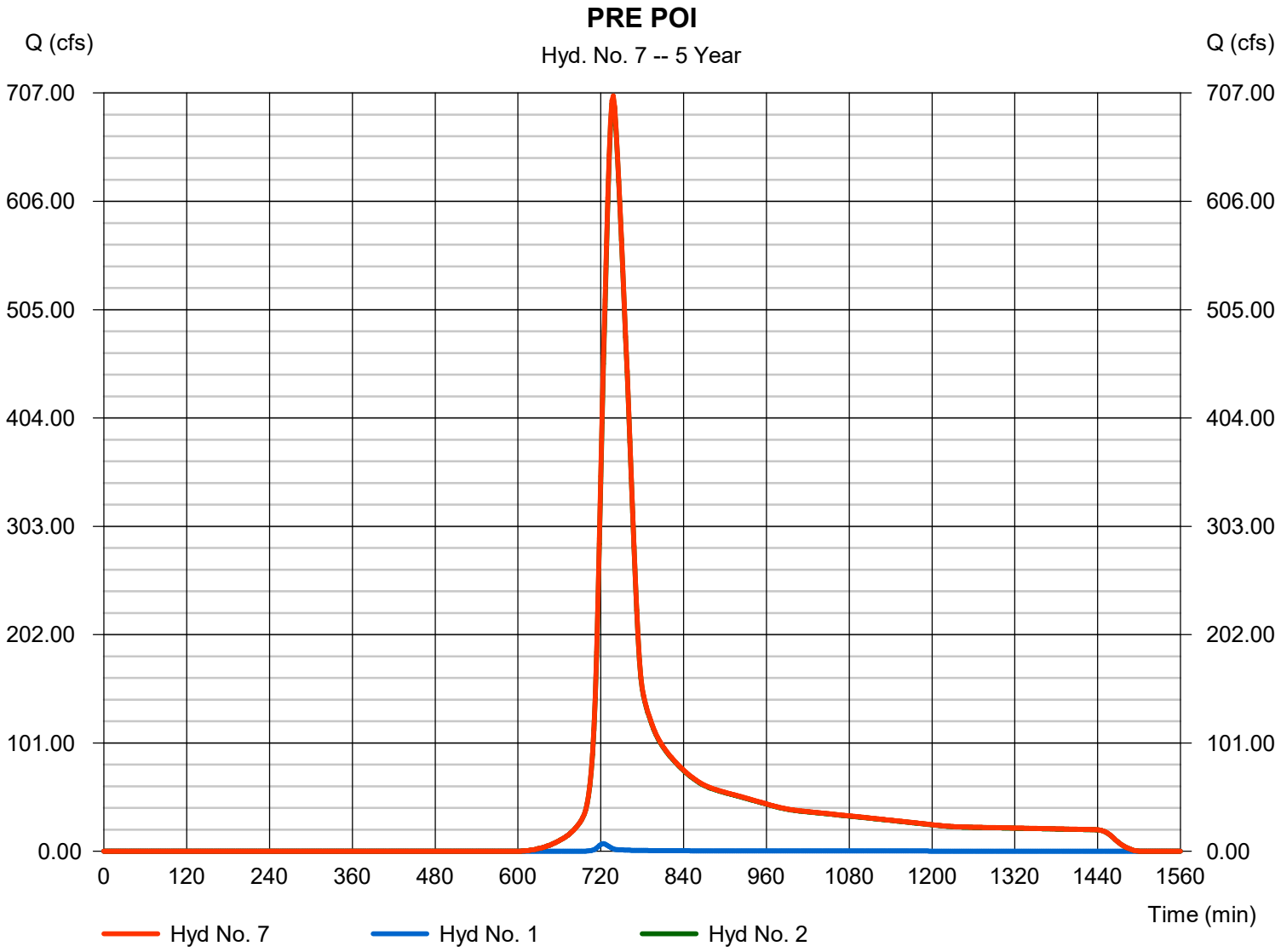


Hydrograph Report

Hyd. No. 7

PRE POI

Hydrograph type	= Combine	Peak discharge	= 704.41 cfs
Storm frequency	= 5 yrs	Time to peak	= 738 min
Time interval	= 2 min	Hyd. volume	= 3,530,147 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 536.020 ac

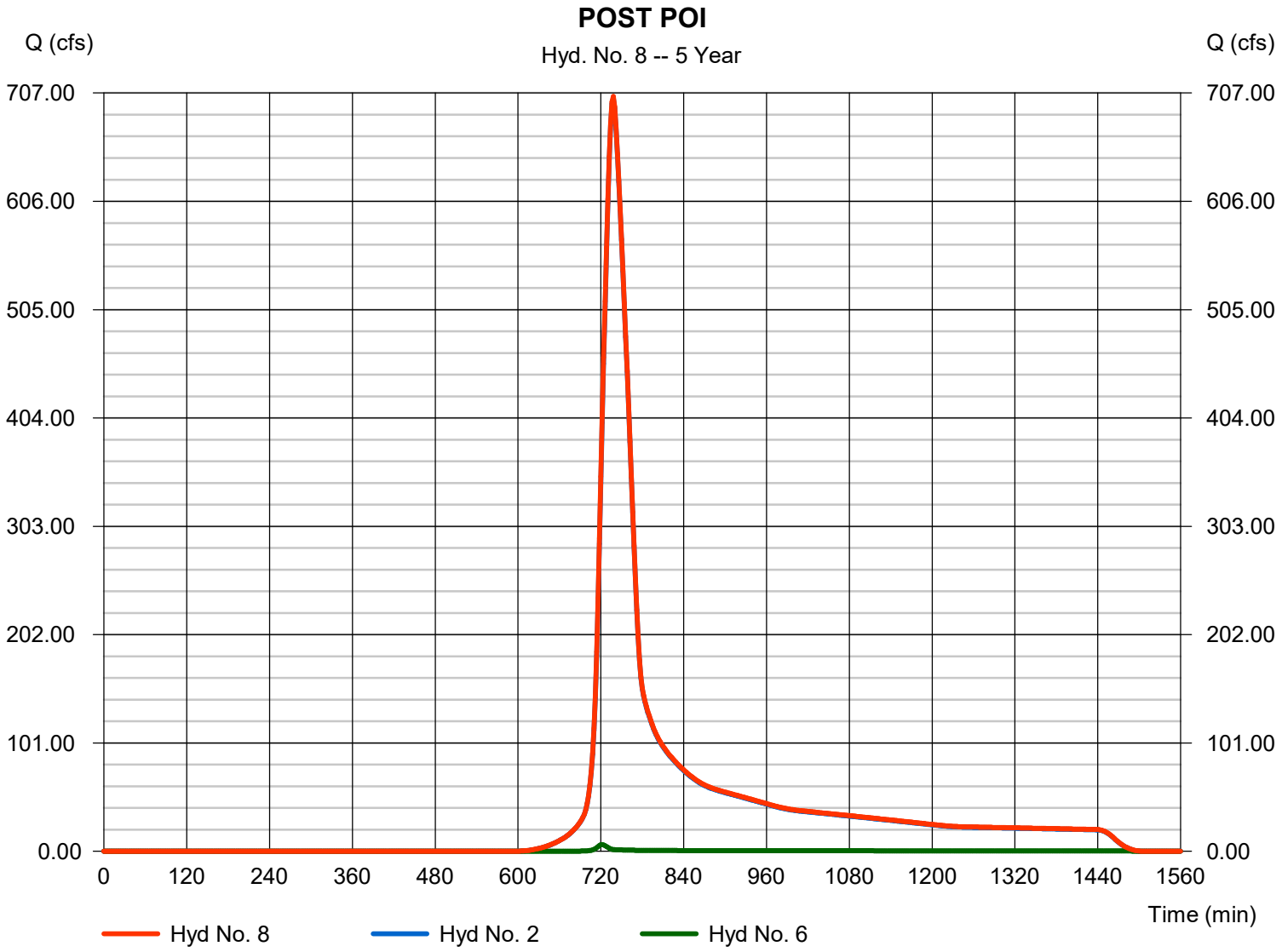


Hydrograph Report

Hyd. No. 8

POST POI

Hydrograph type	= Combine	Peak discharge	= 703.76 cfs
Storm frequency	= 5 yrs	Time to peak	= 738 min
Time interval	= 2 min	Hyd. volume	= 3,540,305 cuft
Inflow hyds.	= 2, 6	Contrib. drain. area	= 531.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	9.514	2	724	28,054	------	------	------	Pre Basin - Onsite STP
2	SCS Runoff	892.19	2	738	4,400,399	------	------	------	10 percent Area
3	SCS Runoff	7.936	2	722	21,218	------	------	------	Post Bsin - Onsite Bypass
4	SCS Runoff	10.52	2	716	23,299	------	------	------	Post Basin - Onsite BMP
5	Reservoir	0.403	2	784	18,080	4	1026.05	19,303	ROUTE BMP
6	Combine	8.260	2	722	39,297	3, 5	------	------	POST STP
7	Combine	895.06	2	738	4,428,452	1, 2,	------	------	PRE POI
8	Combine	894.13	2	738	4,439,694	2, 6,	------	------	POST POI

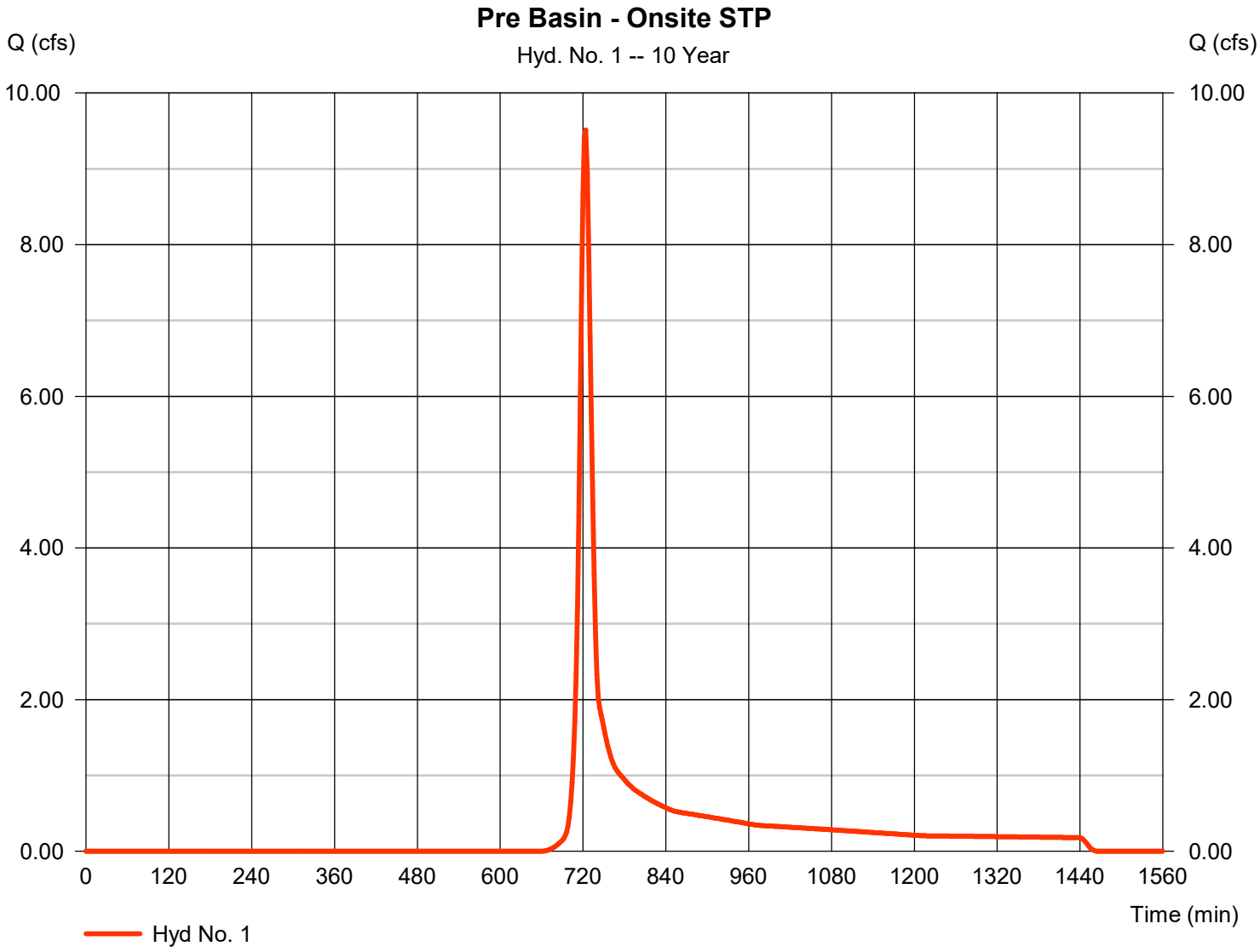
Hydrograph Report

Hyd. No. 1

Pre Basin - Onsite STP

Hydrograph type	=	SCS Runoff	Peak discharge	=	9.514 cfs
Storm frequency	=	10 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	28,054 cuft
Drainage area	=	5.020 ac	Curve number	=	63*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.00 min
Total precip.	=	5.11 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.290 x 55) + (1.730 x 77)] / 5.020



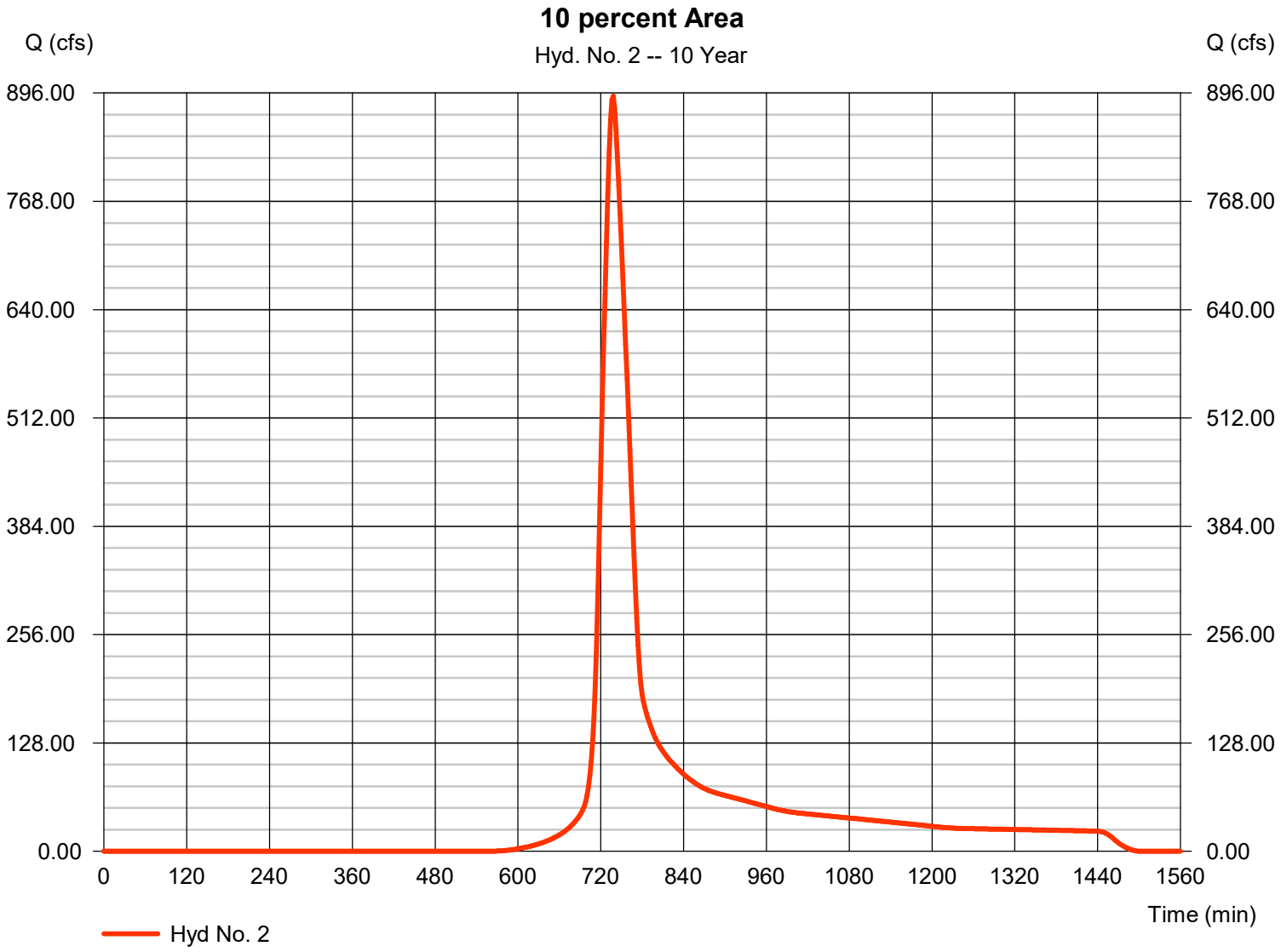
Hydrograph Report

Hyd. No. 2

10 percent Area

Hydrograph type	=	SCS Runoff	Peak discharge	=	892.19 cfs
Storm frequency	=	10 yrs	Time to peak	=	738 min
Time interval	=	2 min	Hyd. volume	=	4,400,399 cuft
Drainage area	=	531.000 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	38.00 min
Total precip.	=	5.11 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(60.000 x 55) + (20.000 x 77) + (250.500 x 61) + (83.500 x 80) + (117.000 x 98)] / 531.000



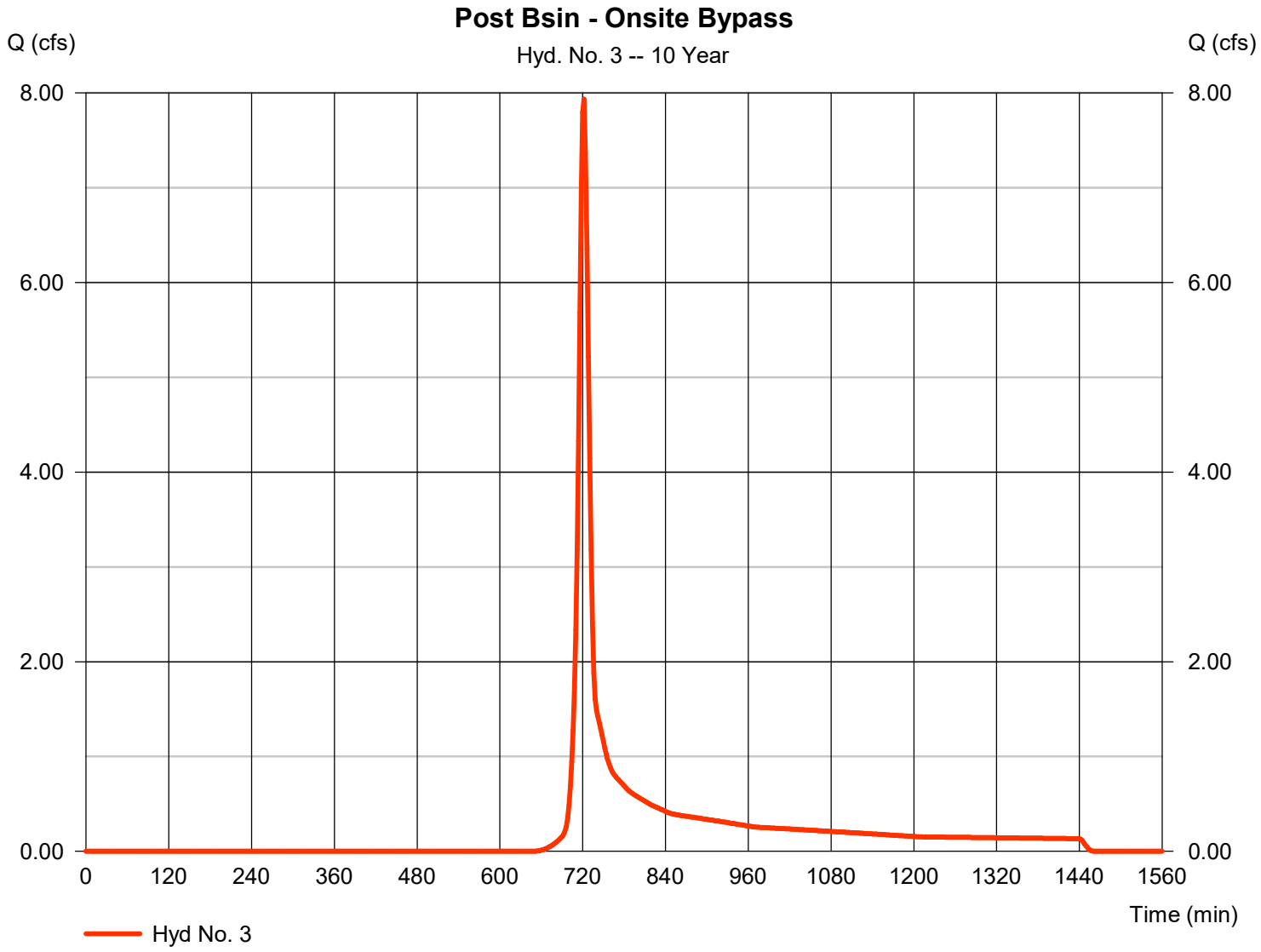
Hydrograph Report

Hyd. No. 3

Post Bsin - Onsite Bypass

Hydrograph type	= SCS Runoff	Peak discharge	= 7.936 cfs
Storm frequency	= 10 yrs	Time to peak	= 722 min
Time interval	= 2 min	Hyd. volume	= 21,218 cuft
Drainage area	= 3.430 ac	Curve number	= 64*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= User	Time of conc. (Tc)	= 10.00 min
Total precip.	= 5.11 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(0.910 x 55) + (1.740 x 77) + (0.570 x 61) + (0.010 x 98)] / 3.430



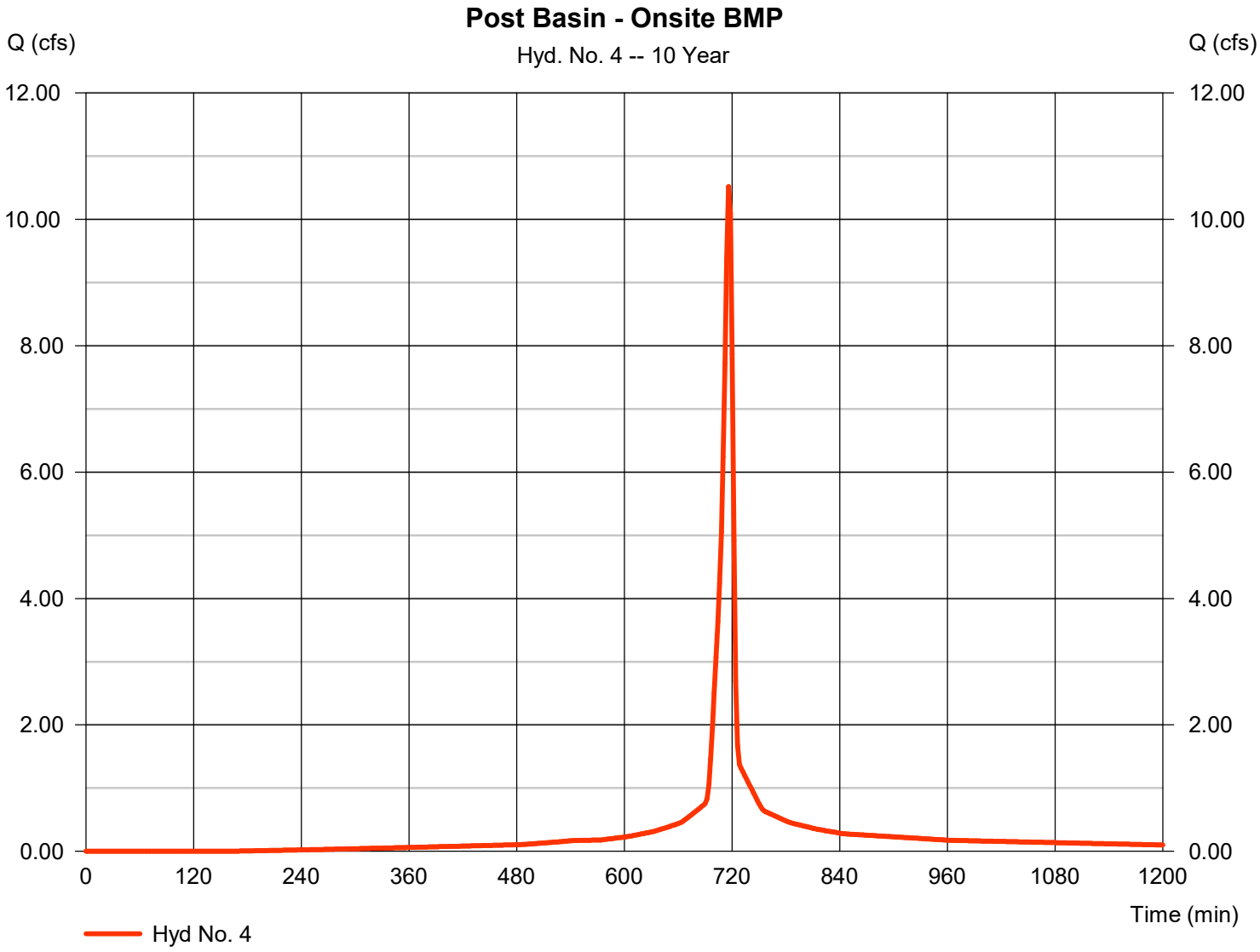
Hydrograph Report

Hyd. No. 4

Post Basin - Onsite BMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.52 cfs
Storm frequency	=	10 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	23,299 cuft
Drainage area	=	1.590 ac	Curve number	=	93*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.11 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.230 x 61) + (1.360 x 98)] / 1.590



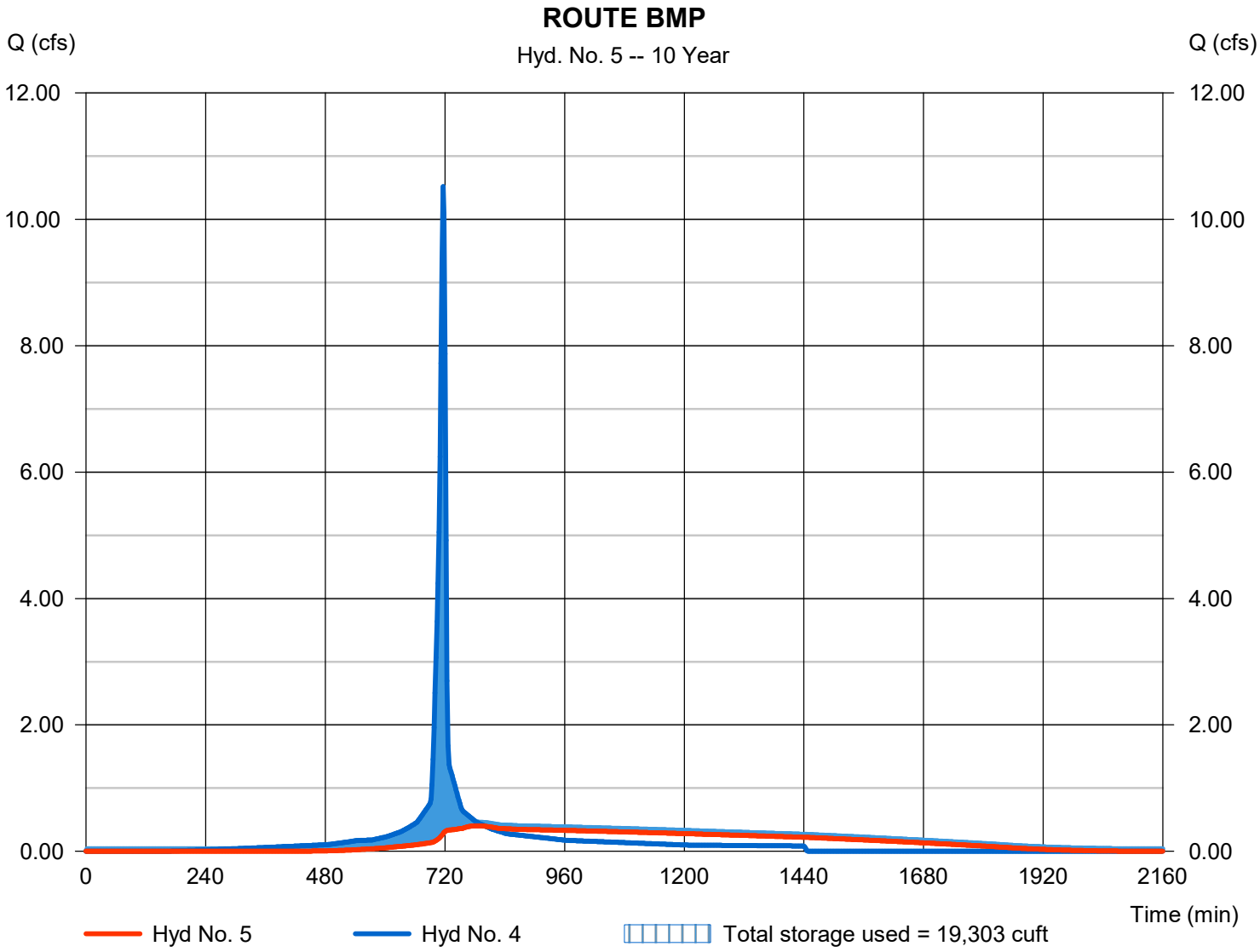
Hydrograph Report

Hyd. No. 5

ROUTE BMP

Hydrograph type	=	Reservoir	Peak discharge	=	0.403 cfs
Storm frequency	=	10 yrs	Time to peak	=	784 min
Time interval	=	2 min	Hyd. volume	=	18,080 cuft
Inflow hyd. No.	=	4 - Post Basin - Onsite BMP	Max. Elevation	=	1026.05 ft
Reservoir name	=	UGS - 48 inch	Max. Storage	=	19,303 cuft

Storage Indication method used. Wet pond routing start elevation = 1023.68 ft. Exfiltration extracted from Outflow.

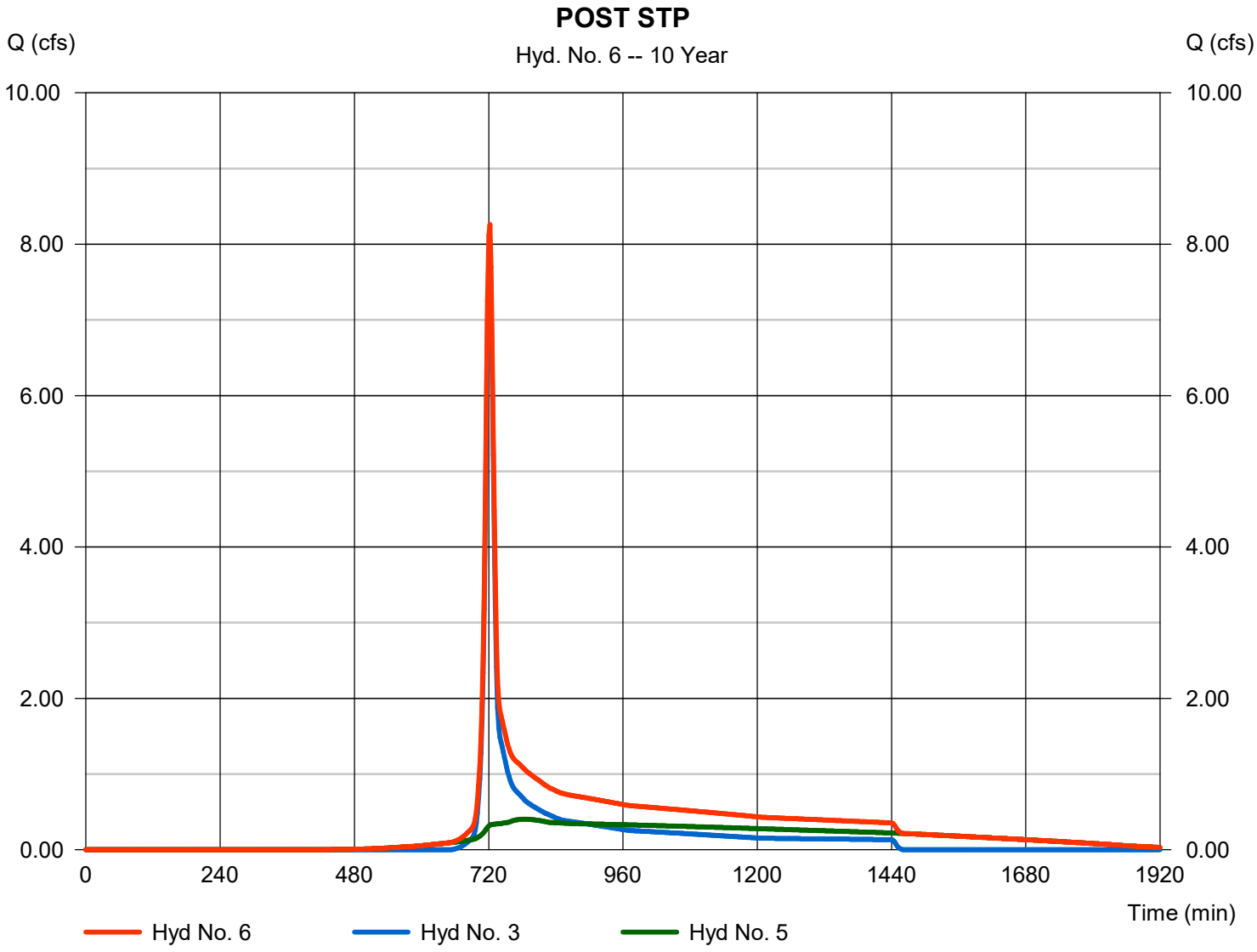


Hydrograph Report

Hyd. No. 6

POST STP

Hydrograph type	=	Combine	Peak discharge	=	8.260 cfs
Storm frequency	=	10 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	39,297 cuft
Inflow hyds.	=	3, 5	Contrib. drain. area	=	3.430 ac

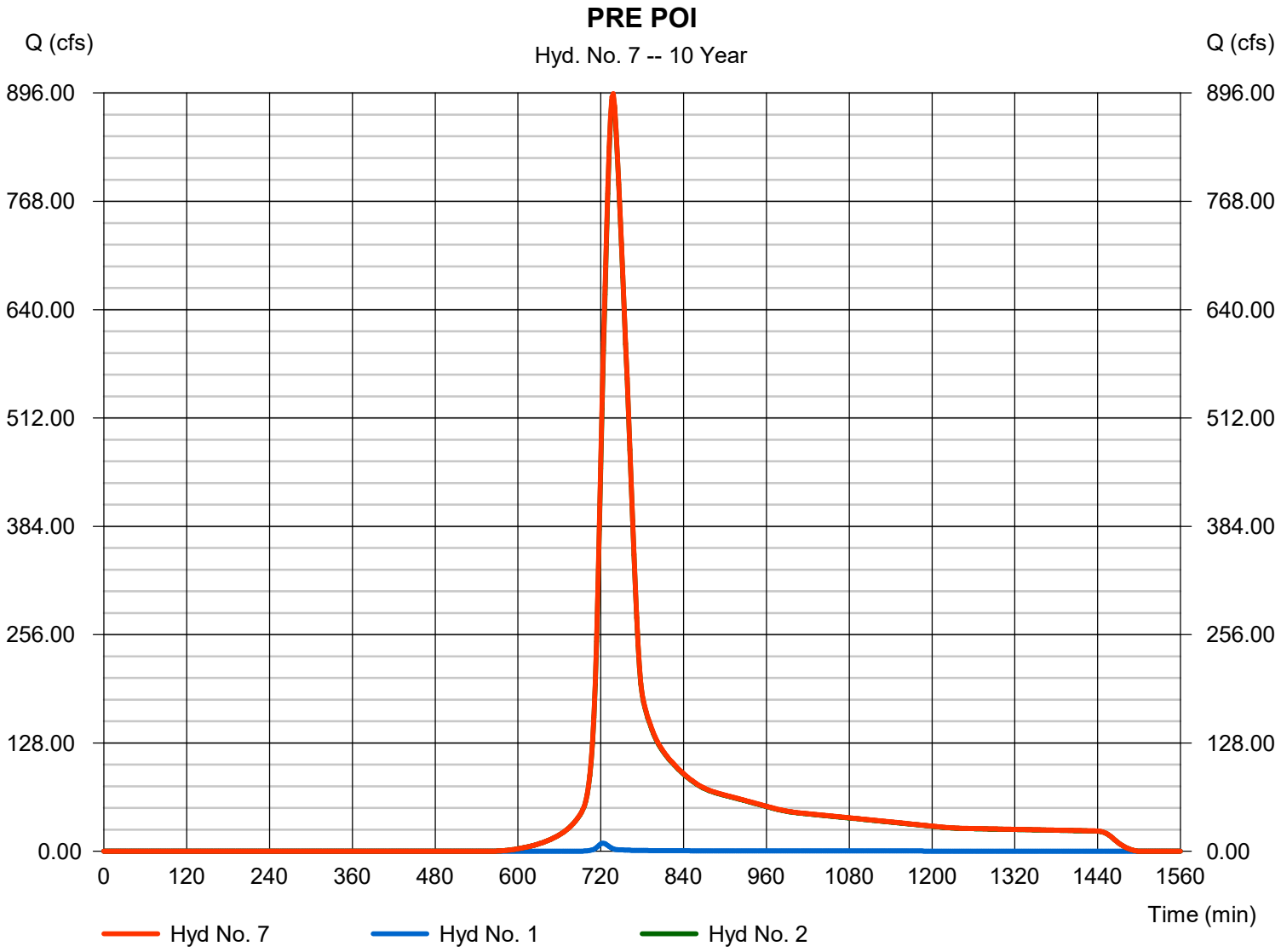


Hydrograph Report

Hyd. No. 7

PRE POI

Hydrograph type	=	Combine	Peak discharge	=	895.06 cfs
Storm frequency	=	10 yrs	Time to peak	=	738 min
Time interval	=	2 min	Hyd. volume	=	4,428,452 cuft
Inflow hyds.	=	1, 2	Contrib. drain. area	=	536.020 ac

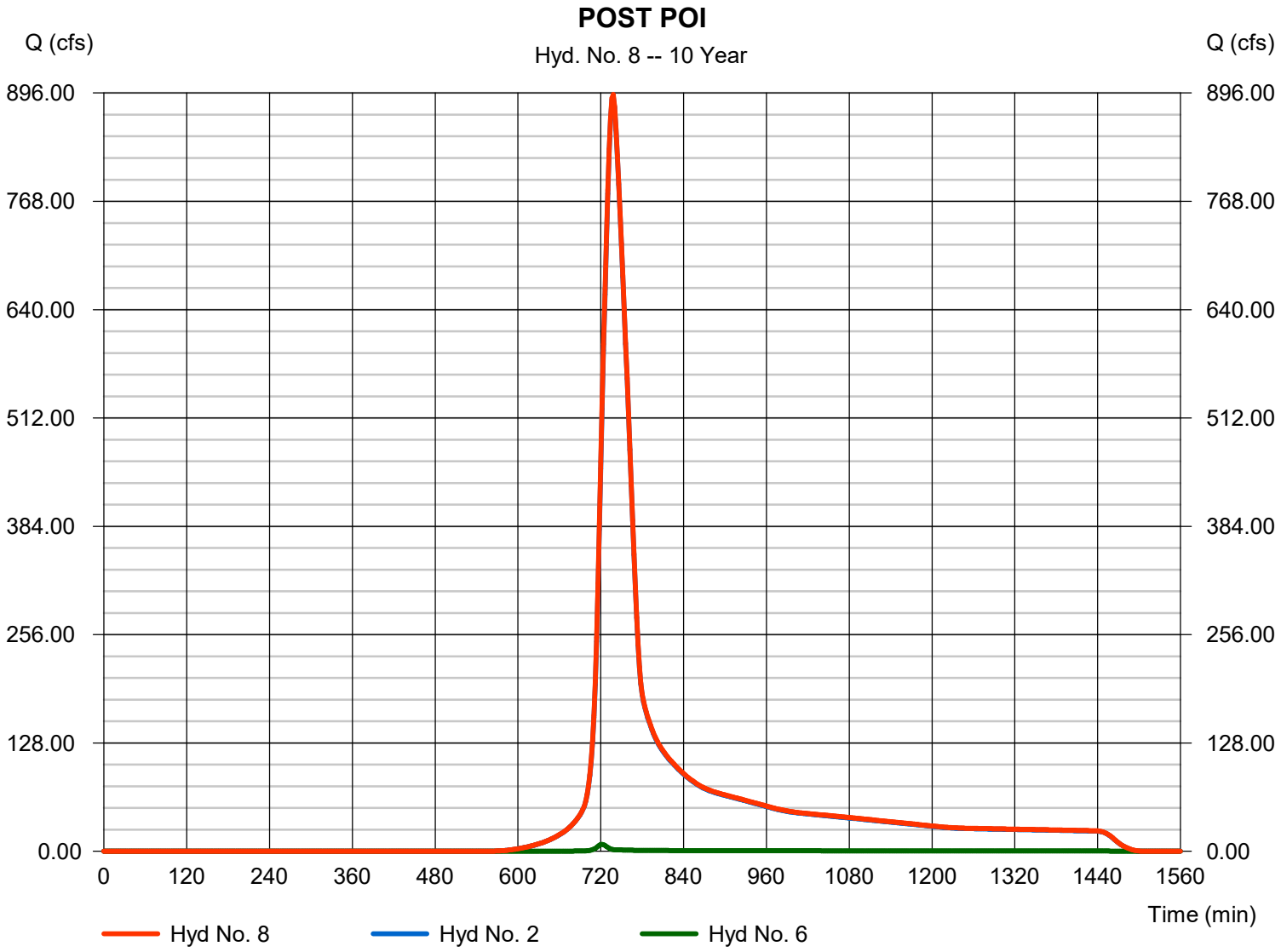


Hydrograph Report

Hyd. No. 8

POST POI

Hydrograph type	= Combine	Peak discharge	= 894.13 cfs
Storm frequency	= 10 yrs	Time to peak	= 738 min
Time interval	= 2 min	Hyd. volume	= 4,439,694 cuft
Inflow hyds.	= 2, 6	Contrib. drain. area	= 531.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	13.30	2	724	38,421	------	------	------	Pre Basin - Onsite STP
2	SCS Runoff	1175.05	2	738	5,738,017	------	------	------	10 percent Area
3	SCS Runoff	10.96	2	722	28,879	------	------	------	Post Bsin - Onsite Bypass
4	SCS Runoff	12.47	2	716	27,936	------	------	------	Post Basin - Onsite BMP
5	Reservoir	1.134	2	740	22,454	4	1026.34	20,778	ROUTE BMP
6	Combine	11.55	2	722	51,333	3, 5	------	------	POST STP
7	Combine	1178.89	2	738	5,776,435	1, 2,	------	------	PRE POI
8	Combine	1178.30	2	738	5,789,344	2, 6,	------	------	POST POI

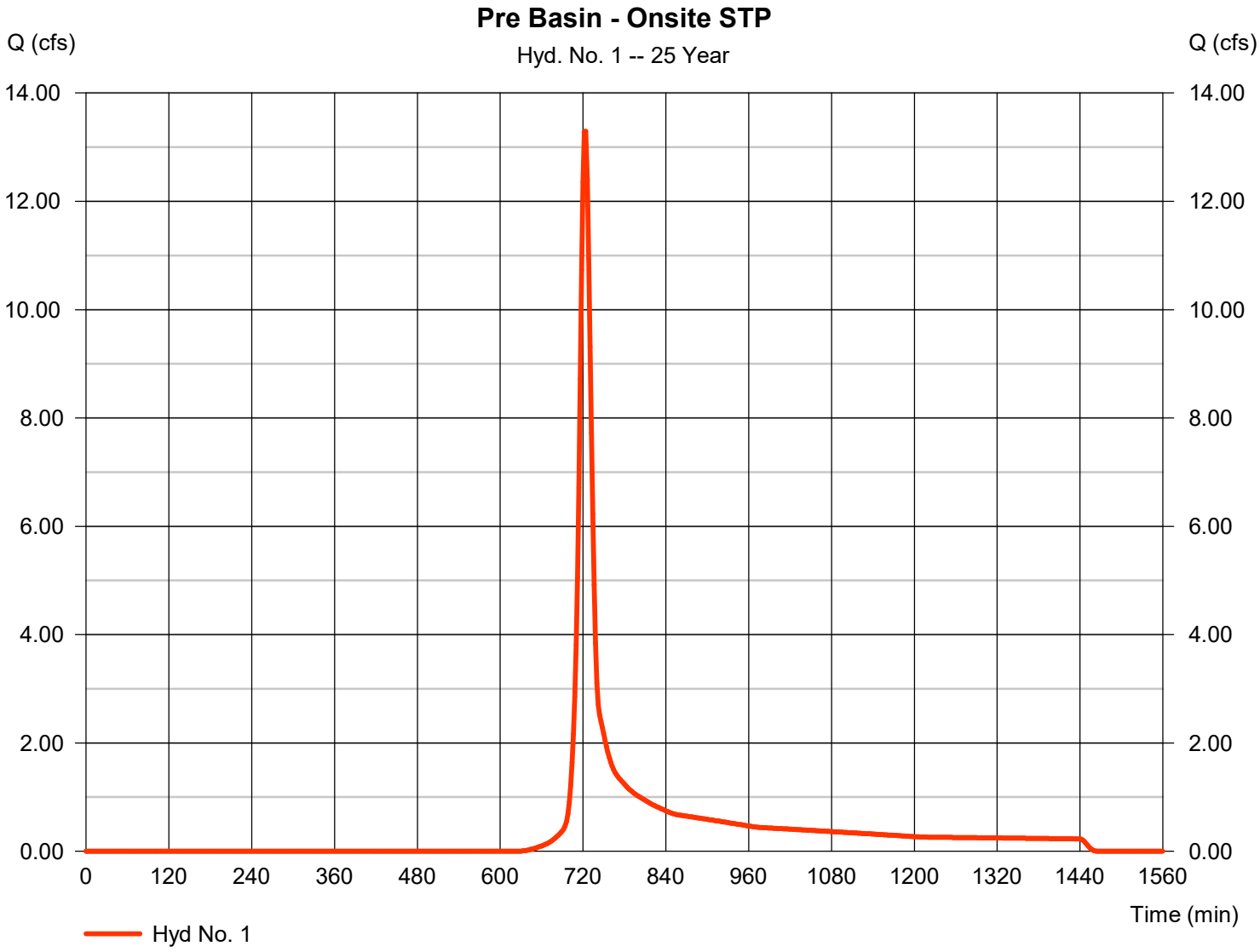
Hydrograph Report

Hyd. No. 1

Pre Basin - Onsite STP

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.30 cfs
Storm frequency	=	25 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	38,421 cuft
Drainage area	=	5.020 ac	Curve number	=	63*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.00 min
Total precip.	=	5.98 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.290 x 55) + (1.730 x 77)] / 5.020



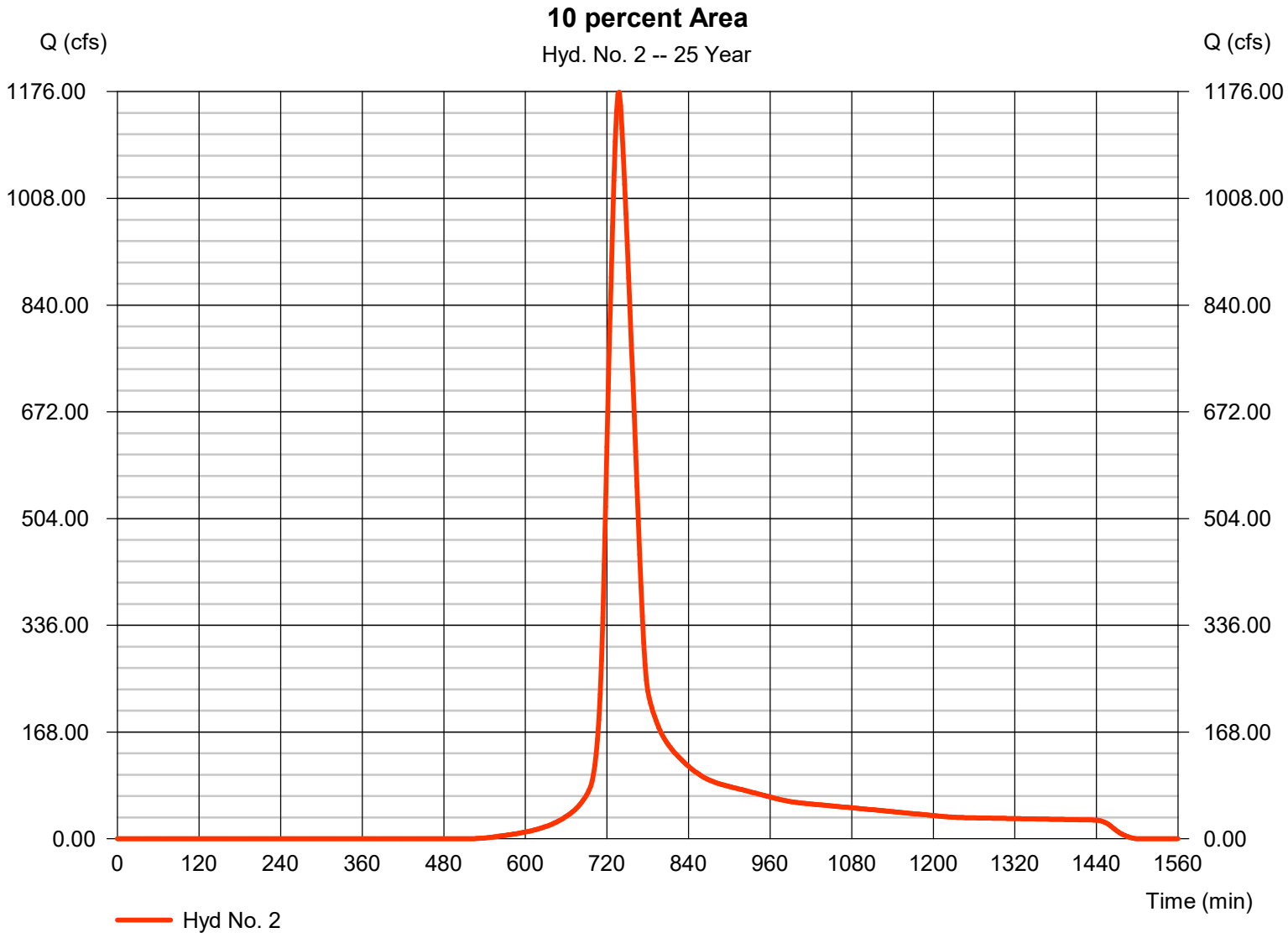
Hydrograph Report

Hyd. No. 2

10 percent Area

Hydrograph type	=	SCS Runoff	Peak discharge	=	1175.05 cfs
Storm frequency	=	25 yrs	Time to peak	=	738 min
Time interval	=	2 min	Hyd. volume	=	5,738,017 cuft
Drainage area	=	531.000 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	38.00 min
Total precip.	=	5.98 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(60.000 x 55) + (20.000 x 77) + (250.500 x 61) + (83.500 x 80) + (117.000 x 98)] / 531.000



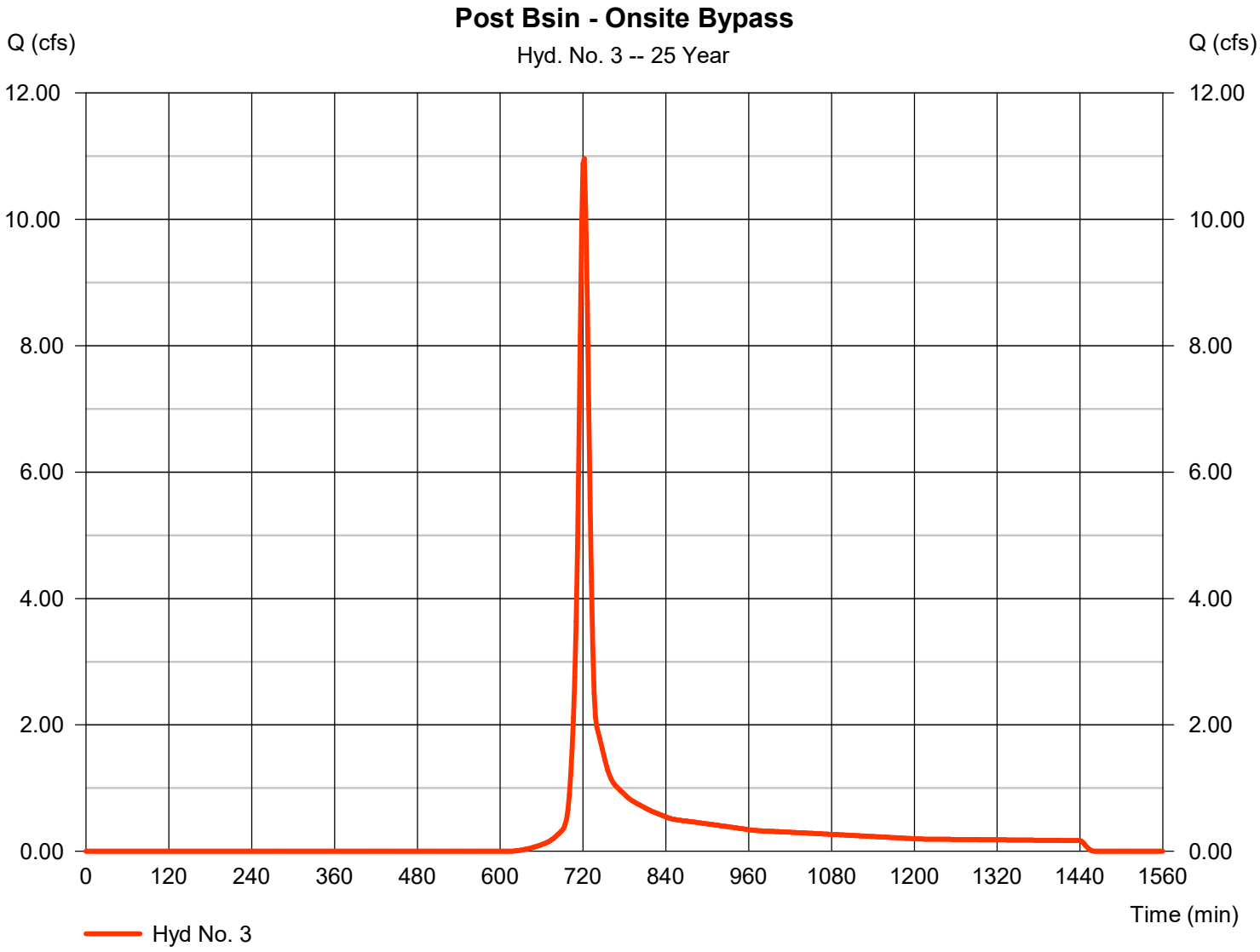
Hydrograph Report

Hyd. No. 3

Post Bsin - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	10.96 cfs
Storm frequency	=	25 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	28,879 cuft
Drainage area	=	3.430 ac	Curve number	=	64*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	5.98 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 55) + (1.740 x 77) + (0.570 x 61) + (0.010 x 98)] / 3.430



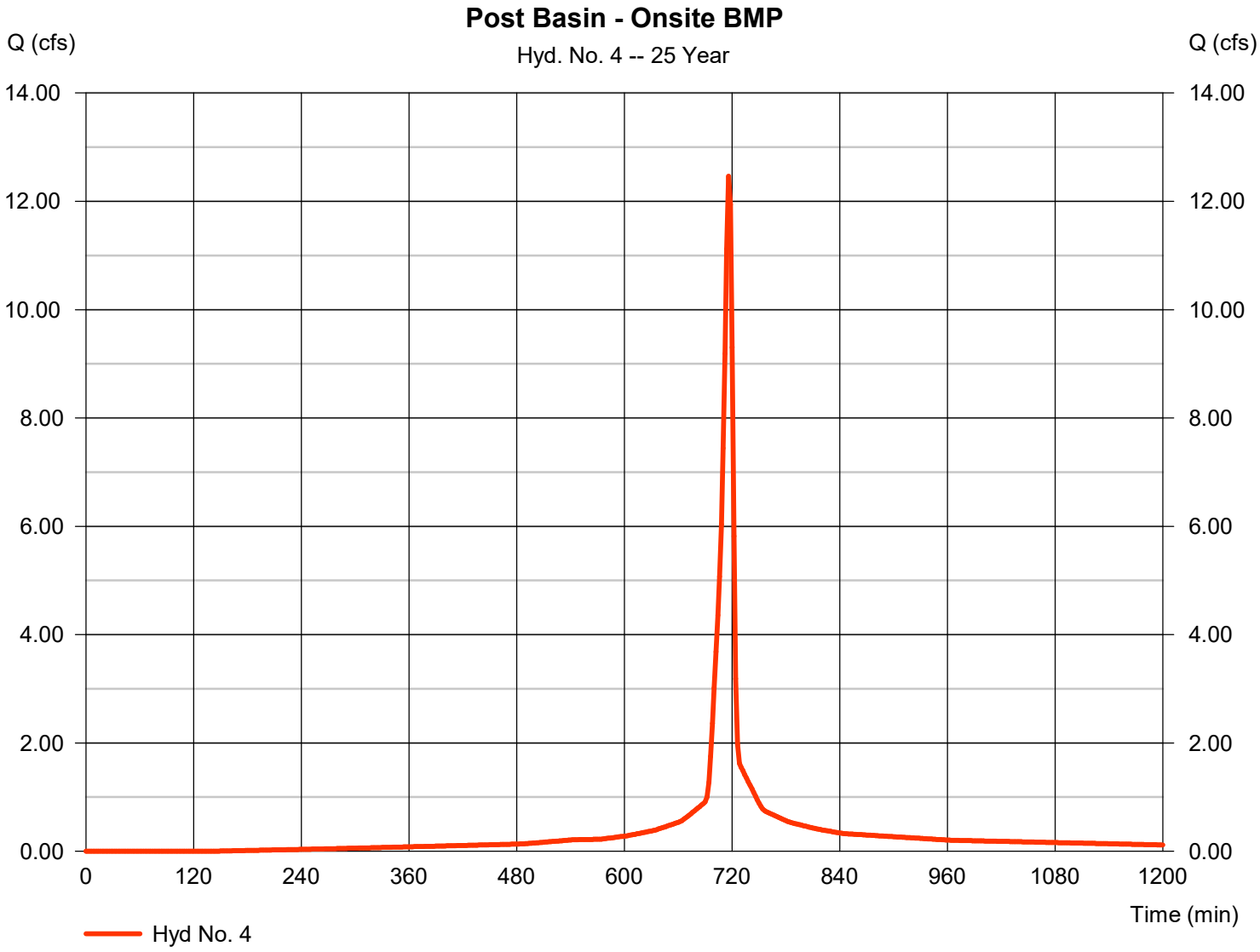
Hydrograph Report

Hyd. No. 4

Post Basin - Onsite BMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	12.47 cfs
Storm frequency	=	25 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	27,936 cuft
Drainage area	=	1.590 ac	Curve number	=	93*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	5.98 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.230 x 61) + (1.360 x 98)] / 1.590



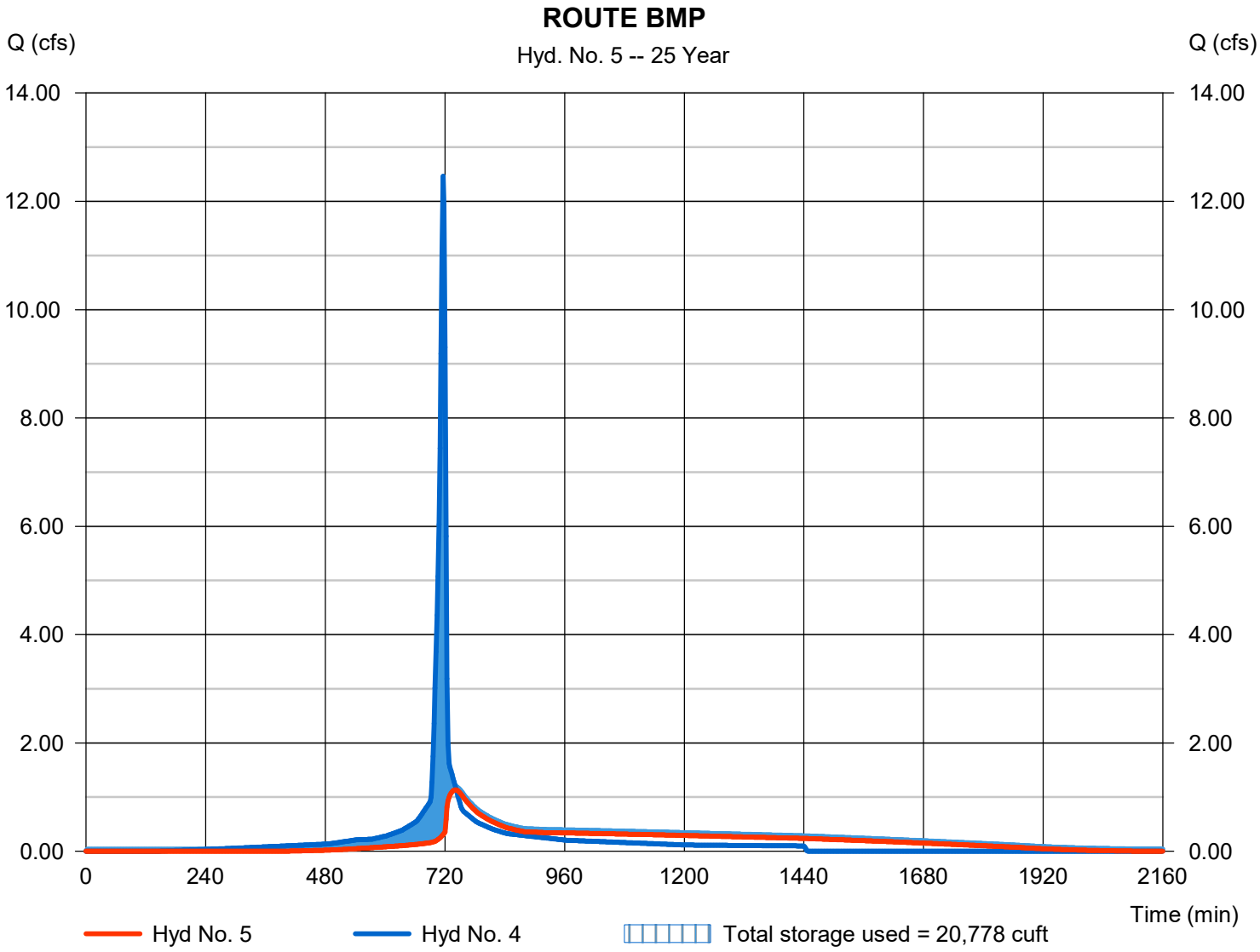
Hydrograph Report

Hyd. No. 5

ROUTE BMP

Hydrograph type	= Reservoir	Peak discharge	= 1.134 cfs
Storm frequency	= 25 yrs	Time to peak	= 740 min
Time interval	= 2 min	Hyd. volume	= 22,454 cuft
Inflow hyd. No.	= 4 - Post Basin - Onsite BMP	Max. Elevation	= 1026.34 ft
Reservoir name	= UGS - 48 inch	Max. Storage	= 20,778 cuft

Storage Indication method used. Wet pond routing start elevation = 1023.68 ft. Exfiltration extracted from Outflow.

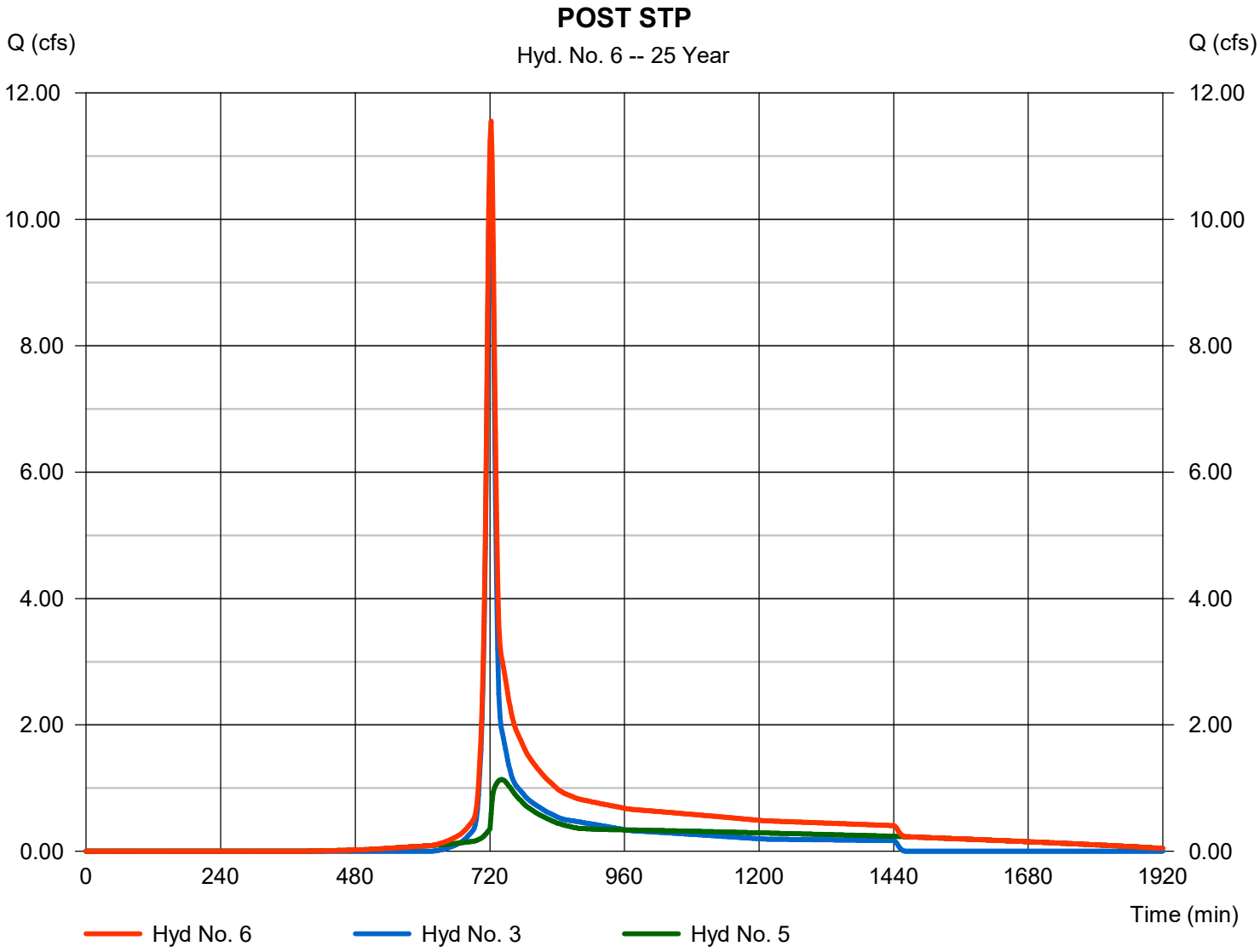


Hydrograph Report

Hyd. No. 6

POST STP

Hydrograph type	=	Combine	Peak discharge	=	11.55 cfs
Storm frequency	=	25 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	51,333 cuft
Inflow hyds.	=	3, 5	Contrib. drain. area	=	3.430 ac

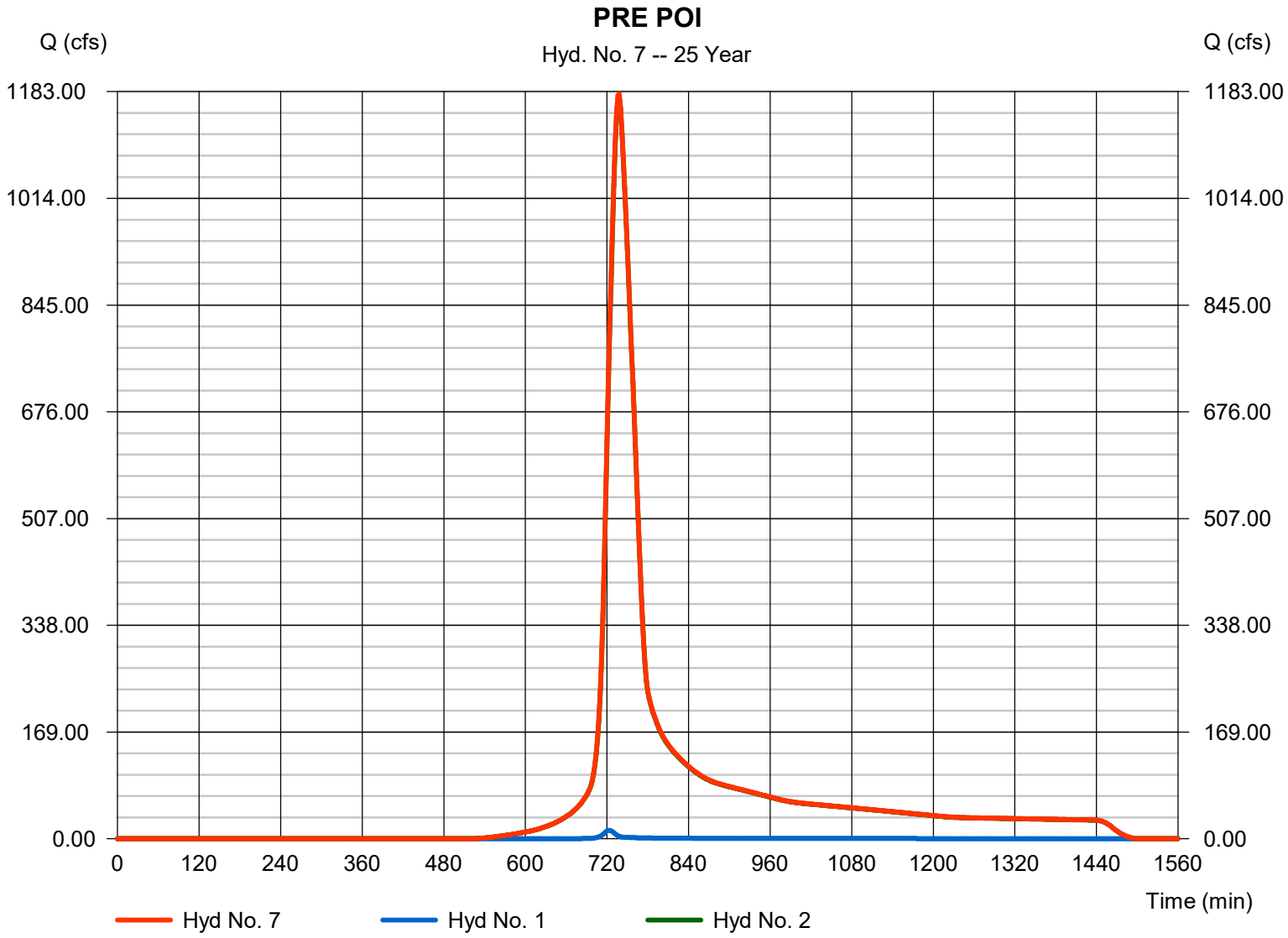


Hydrograph Report

Hyd. No. 7

PRE POI

Hydrograph type	=	Combine	Peak discharge	=	1178.89 cfs
Storm frequency	=	25 yrs	Time to peak	=	738 min
Time interval	=	2 min	Hyd. volume	=	5,776,435 cuft
Inflow hyds.	=	1, 2	Contrib. drain. area	=	536.020 ac

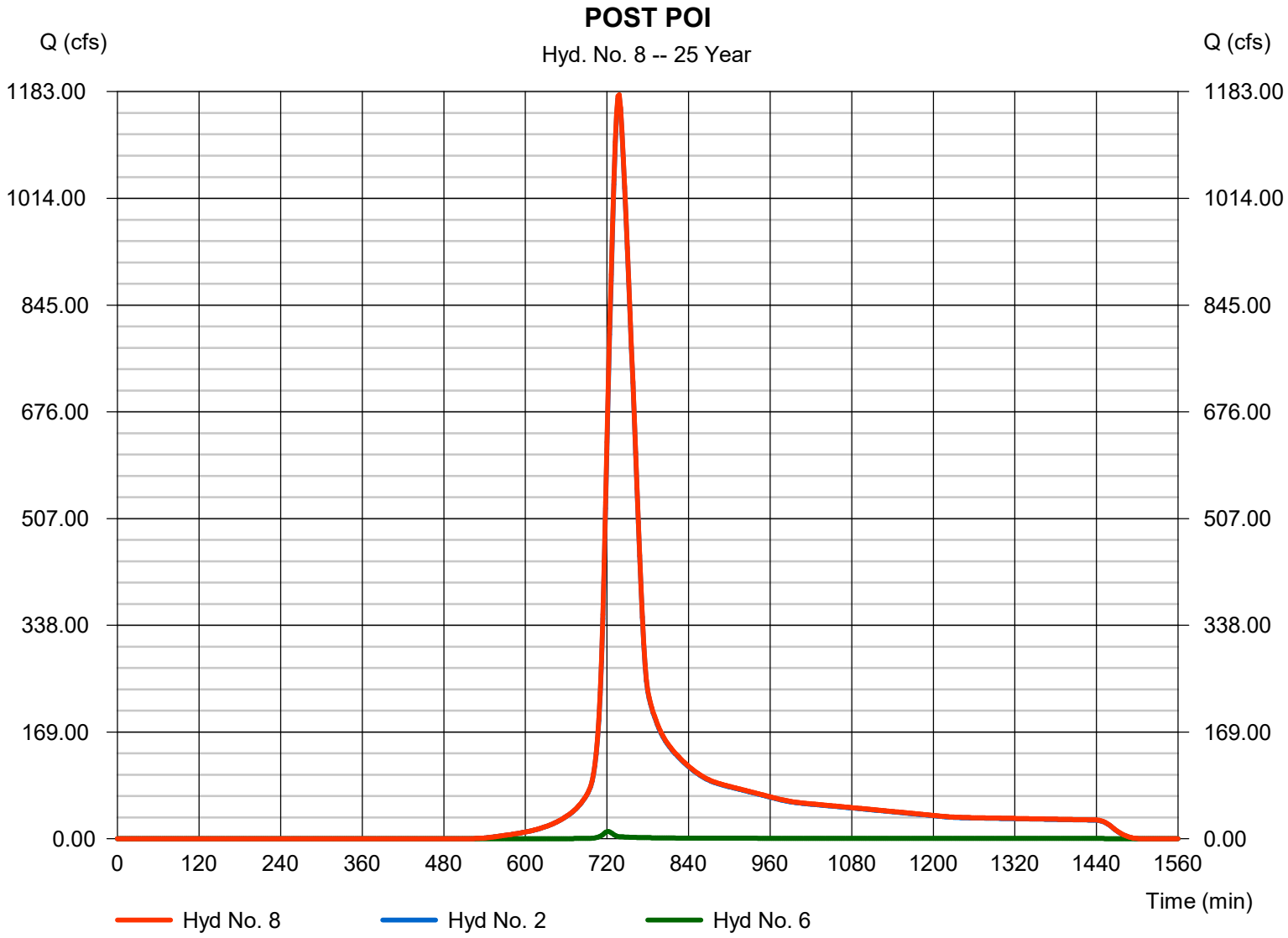


Hydrograph Report

Hyd. No. 8

POST POI

Hydrograph type	= Combine	Peak discharge	= 1178.30 cfs
Storm frequency	= 25 yrs	Time to peak	= 738 min
Time interval	= 2 min	Hyd. volume	= 5,789,344 cuft
Inflow hyds.	= 2, 6	Contrib. drain. area	= 531.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	16.49	2	722	47,067	------	------	------	Pre Basin - Onsite STP
2	SCS Runoff	1403.17	2	738	6,825,583	------	------	------	10 percent Area
3	SCS Runoff	13.45	2	722	35,248	------	------	------	Post Bsin - Onsite Bypass
4	SCS Runoff	13.98	2	716	31,572	------	------	------	Post Basin - Onsite BMP
5	Reservoir	2.203	2	726	25,928	4	1026.60	22,045	ROUTE BMP
6	Combine	15.25	2	722	61,176	3, 5	------	------	POST STP
7	Combine	1407.79	2	738	6,872,650	1, 2,	------	------	PRE POI
8	Combine	1407.61	2	738	6,886,755	2, 6,	------	------	POST POI

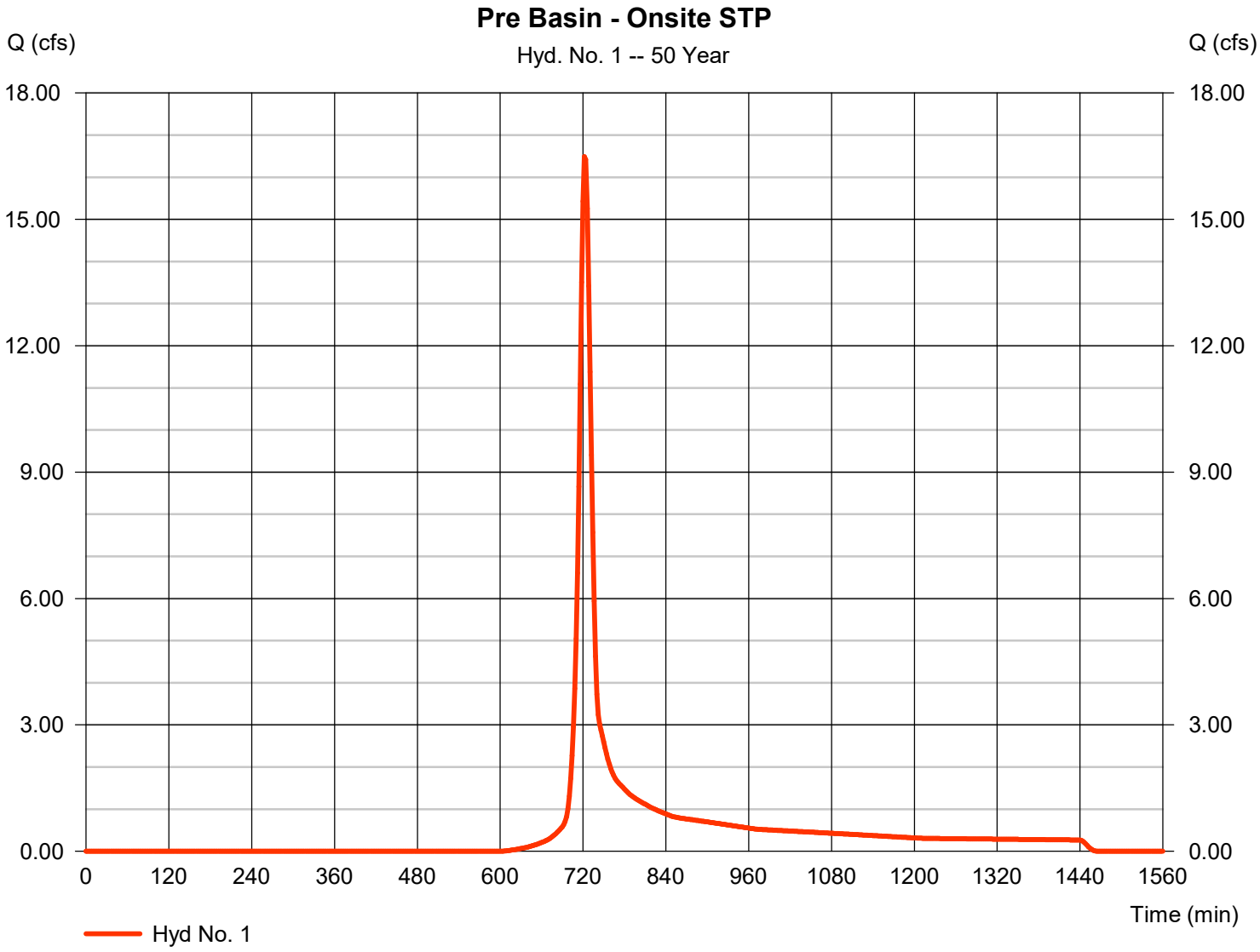
Hydrograph Report

Hyd. No. 1

Pre Basin - Onsite STP

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.49 cfs
Storm frequency	=	50 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	47,067 cuft
Drainage area	=	5.020 ac	Curve number	=	63*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.00 min
Total precip.	=	6.66 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.290 x 55) + (1.730 x 77)] / 5.020



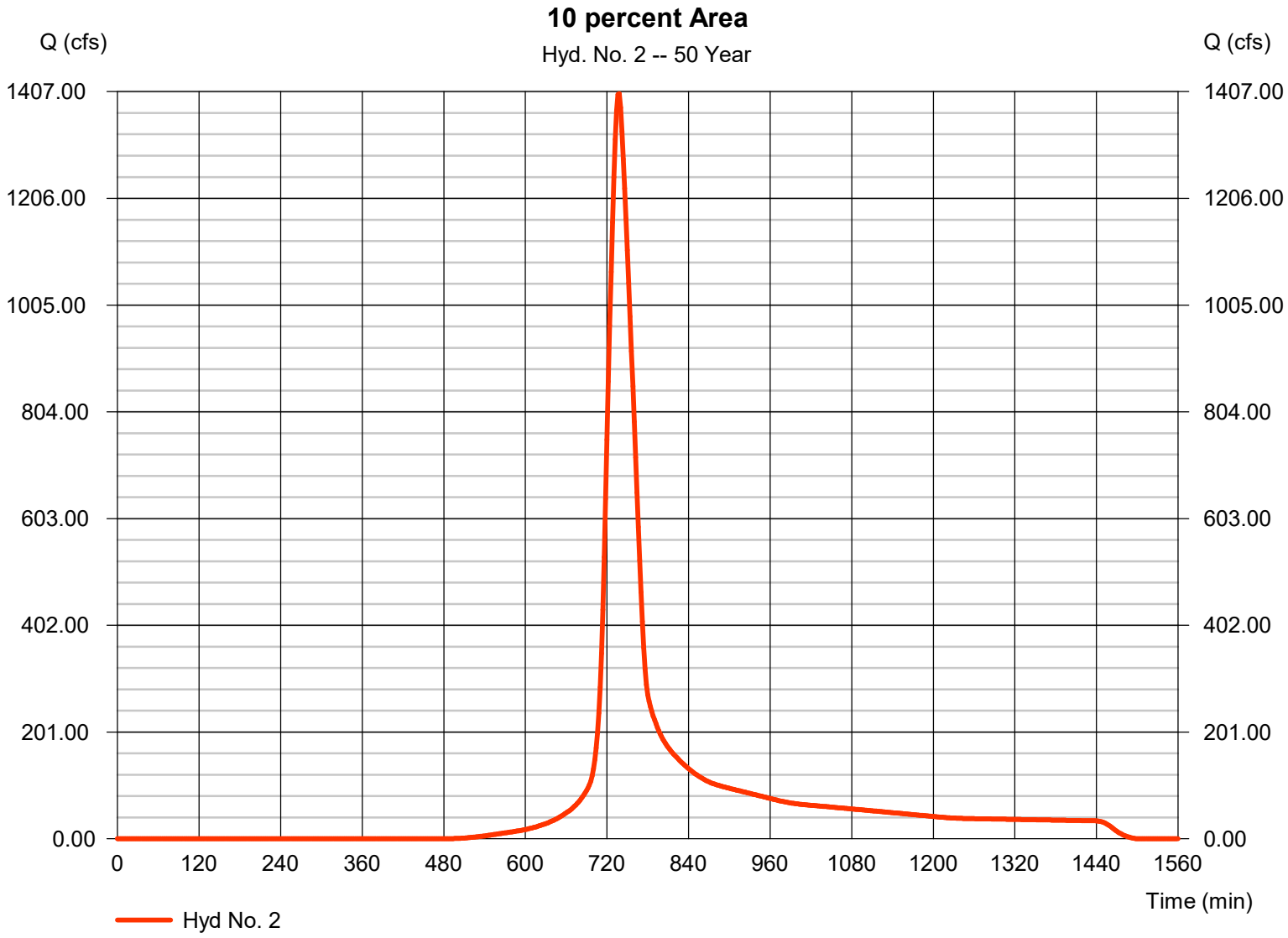
Hydrograph Report

Hyd. No. 2

10 percent Area

Hydrograph type	=	SCS Runoff	Peak discharge	=	1403.17 cfs
Storm frequency	=	50 yrs	Time to peak	=	738 min
Time interval	=	2 min	Hyd. volume	=	6,825,583 cuft
Drainage area	=	531.000 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	38.00 min
Total precip.	=	6.66 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(60.000 x 55) + (20.000 x 77) + (250.500 x 61) + (83.500 x 80) + (117.000 x 98)] / 531.000



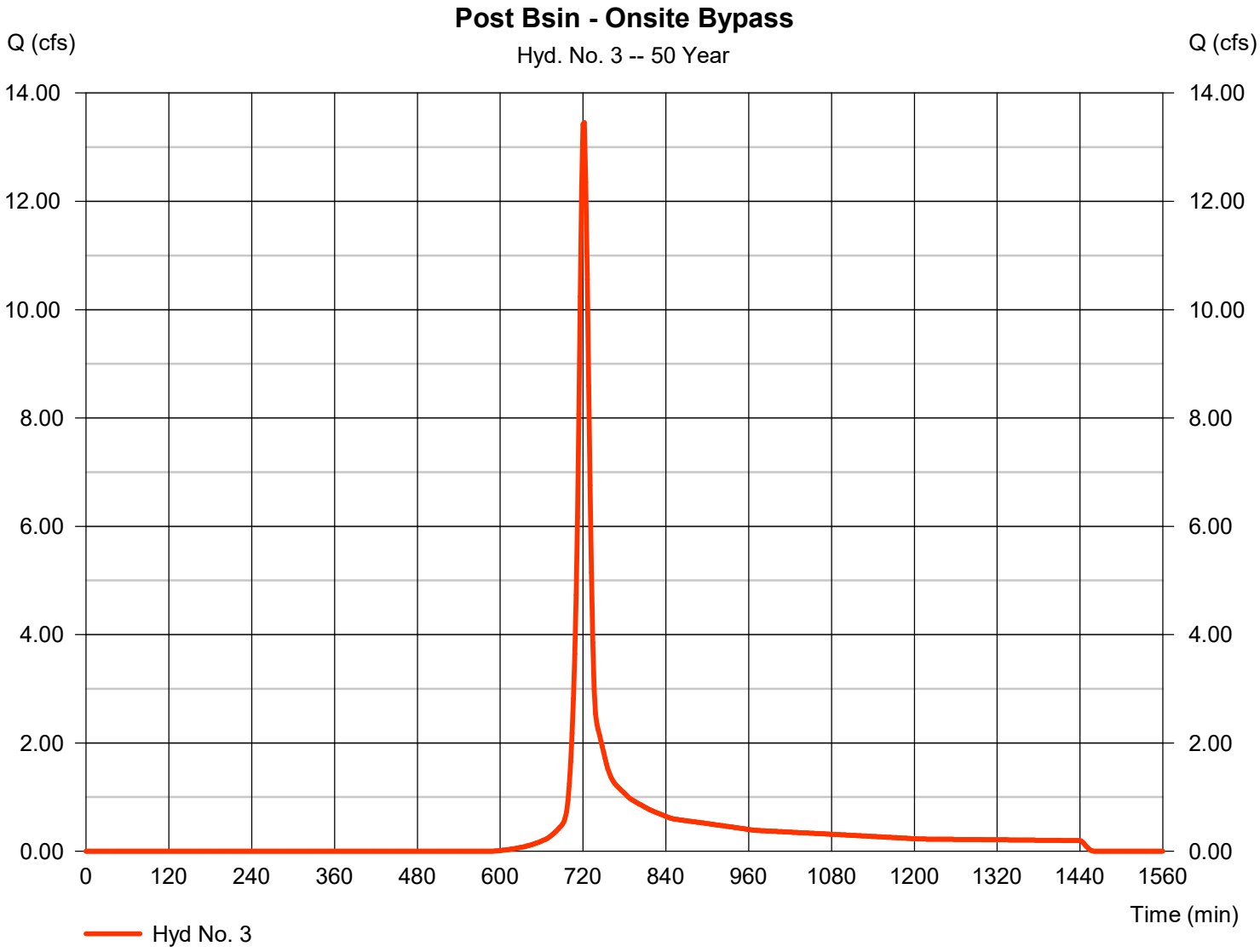
Hydrograph Report

Hyd. No. 3

Post Bsin - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.45 cfs
Storm frequency	=	50 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	35,248 cuft
Drainage area	=	3.430 ac	Curve number	=	64*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	6.66 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 55) + (1.740 x 77) + (0.570 x 61) + (0.010 x 98)] / 3.430



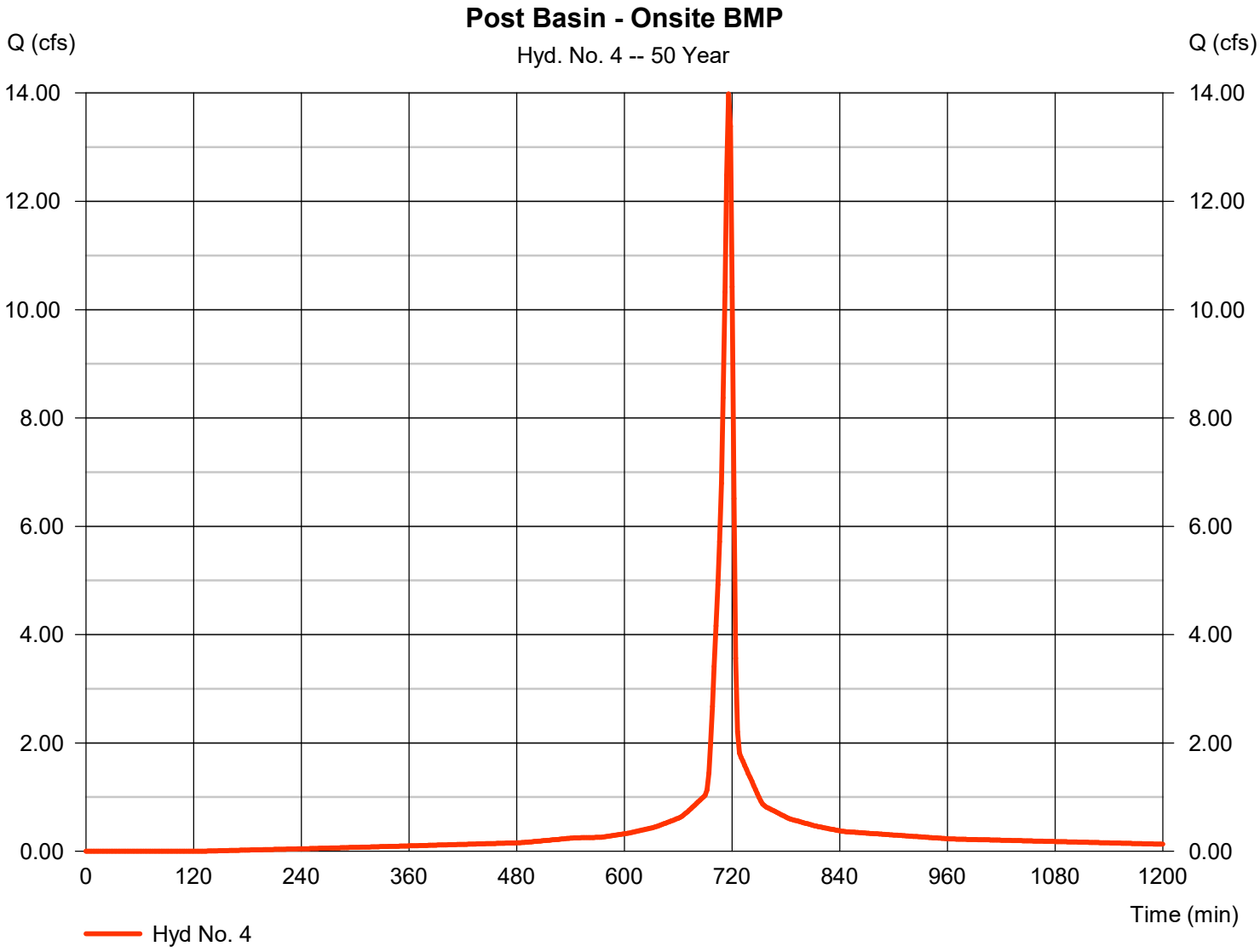
Hydrograph Report

Hyd. No. 4

Post Basin - Onsite BMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	13.98 cfs
Storm frequency	=	50 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	31,572 cuft
Drainage area	=	1.590 ac	Curve number	=	93*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	6.66 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.230 x 61) + (1.360 x 98)] / 1.590



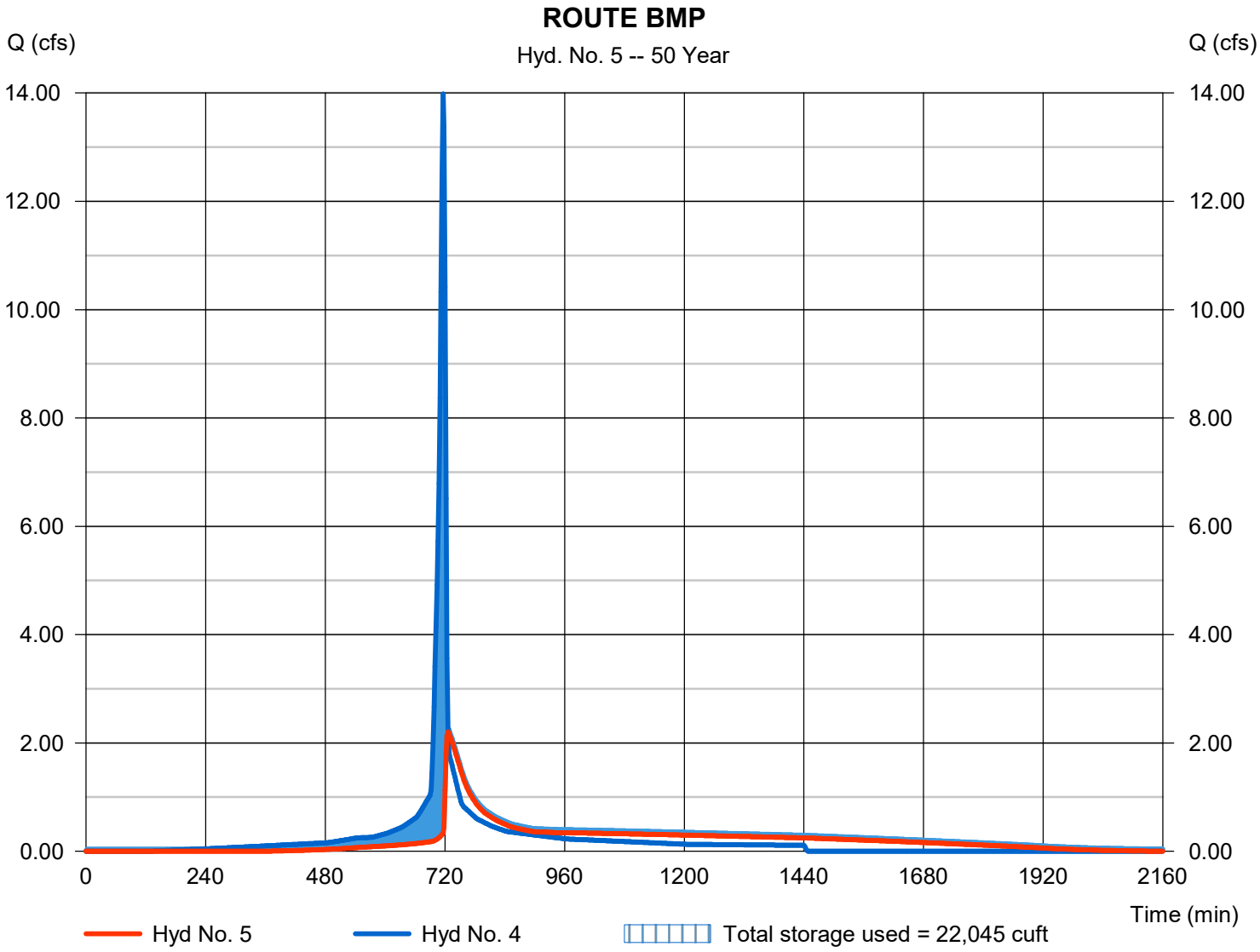
Hydrograph Report

Hyd. No. 5

ROUTE BMP

Hydrograph type	=	Reservoir	Peak discharge	=	2.203 cfs
Storm frequency	=	50 yrs	Time to peak	=	726 min
Time interval	=	2 min	Hyd. volume	=	25,928 cuft
Inflow hyd. No.	=	4 - Post Basin - Onsite BMP	Max. Elevation	=	1026.60 ft
Reservoir name	=	UGS - 48 inch	Max. Storage	=	22,045 cuft

Storage Indication method used. Wet pond routing start elevation = 1023.68 ft. Exfiltration extracted from Outflow.

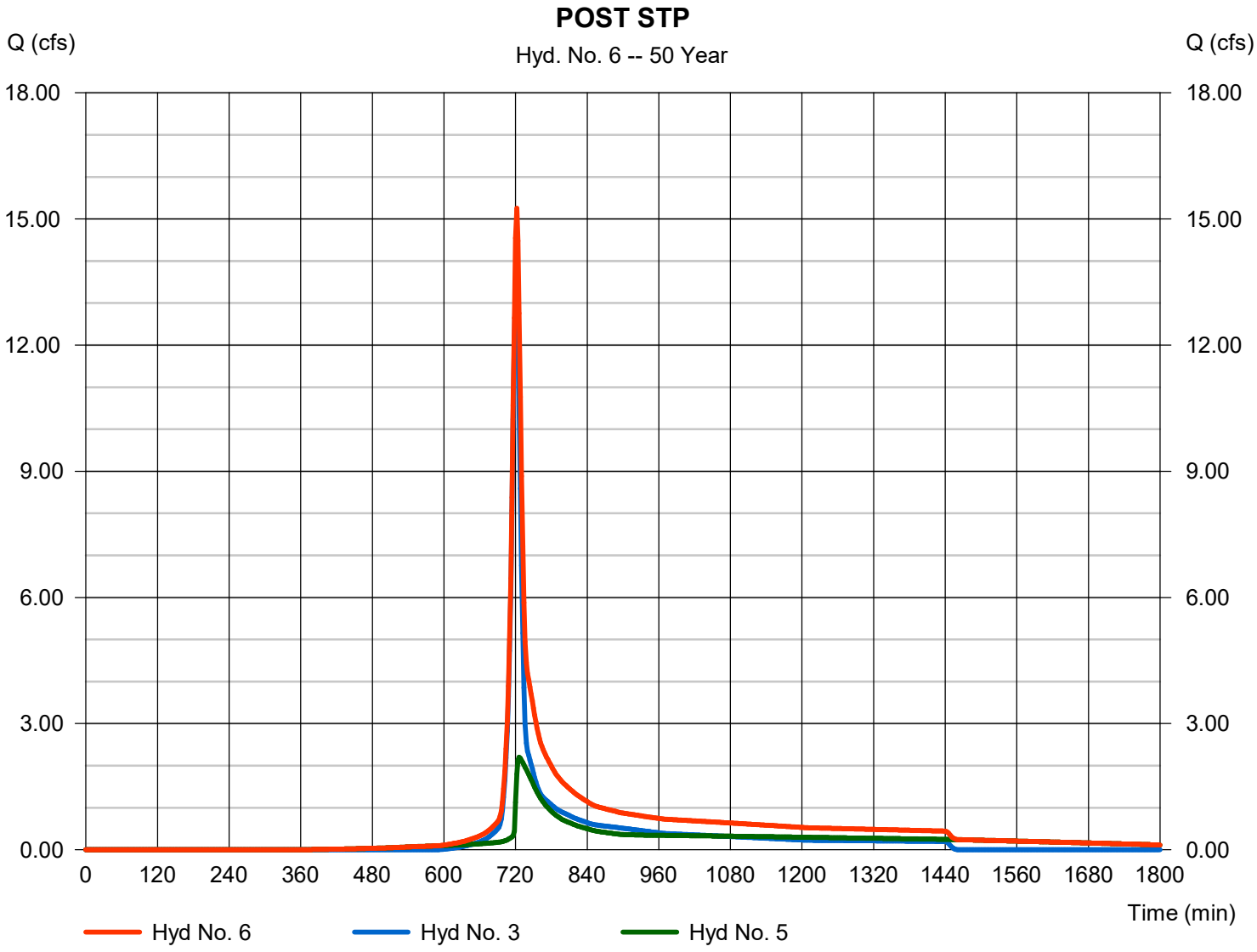


Hydrograph Report

Hyd. No. 6

POST STP

Hydrograph type	=	Combine	Peak discharge	=	15.25 cfs
Storm frequency	=	50 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	61,176 cuft
Inflow hyds.	=	3, 5	Contrib. drain. area	=	3.430 ac

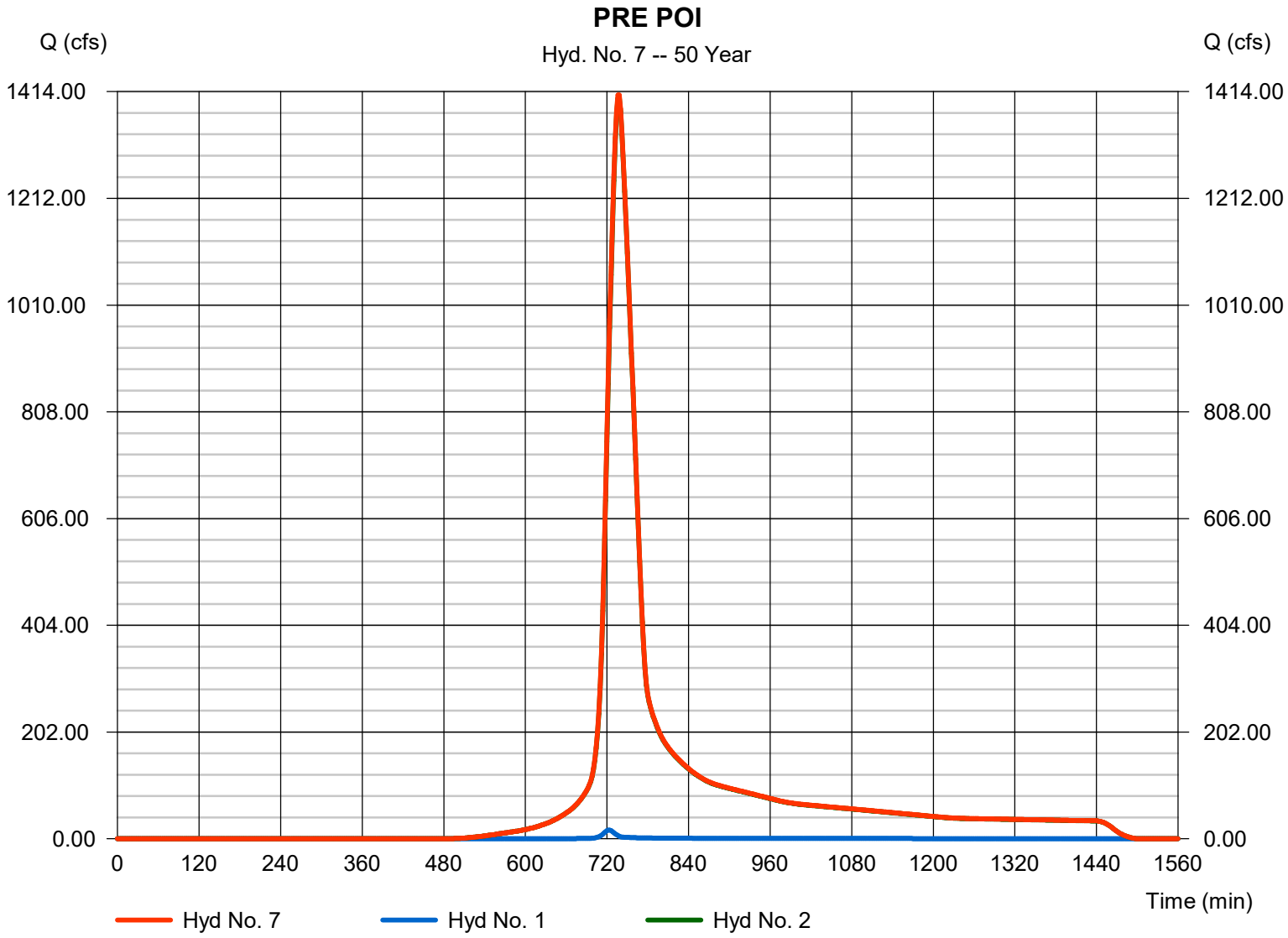


Hydrograph Report

Hyd. No. 7

PRE POI

Hydrograph type	=	Combine	Peak discharge	=	1407.79 cfs
Storm frequency	=	50 yrs	Time to peak	=	738 min
Time interval	=	2 min	Hyd. volume	=	6,872,650 cuft
Inflow hyds.	=	1, 2	Contrib. drain. area	=	536.020 ac

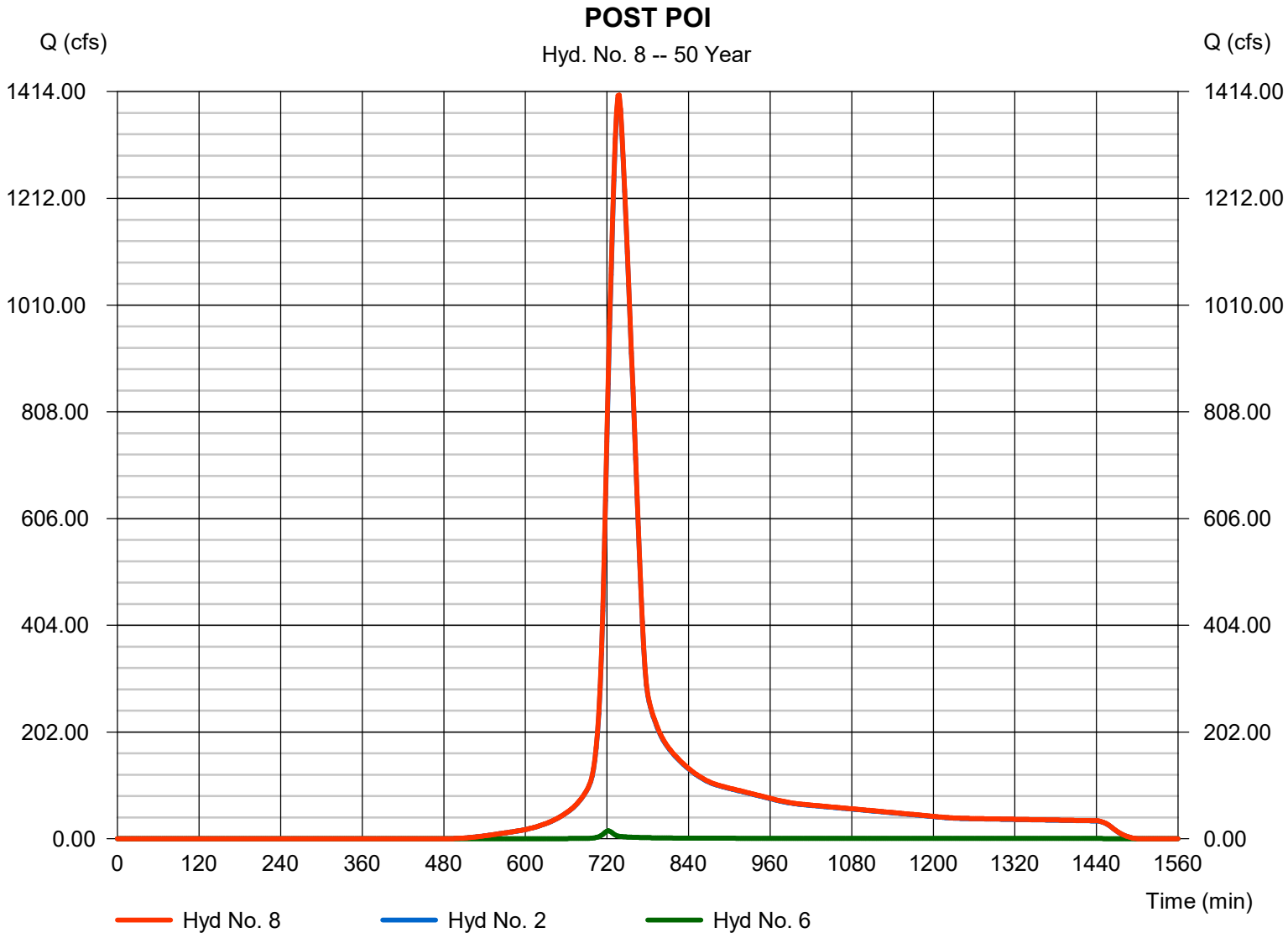


Hydrograph Report

Hyd. No. 8

POST POI

Hydrograph type	=	Combine	Peak discharge	=	1407.61 cfs
Storm frequency	=	50 yrs	Time to peak	=	738 min
Time interval	=	2 min	Hyd. volume	=	6,886,755 cuft
Inflow hyds.	=	2, 6	Contrib. drain. area	=	531.000 ac



Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	19.91	2	722	56,372	------	------	------	Pre Basin - Onsite STP
2	SCS Runoff	1642.95	2	736	7,975,411	------	------	------	10 percent Area
3	SCS Runoff	16.13	2	720	42,087	------	------	------	Post Bsin - Onsite Bypass
4	SCS Runoff	15.53	2	716	35,322	------	------	------	Post Basin - Onsite BMP
5	Reservoir	3.913	2	724	29,531	4	1026.93	23,427	ROUTE BMP
6	Combine	19.63	2	722	71,619	3, 5	------	------	POST STP
7	Combine	1649.98	2	736	8,031,786	1, 2,	------	------	PRE POI
8	Combine	1649.18	2	736	8,047,032	2, 6,	------	------	POST POI

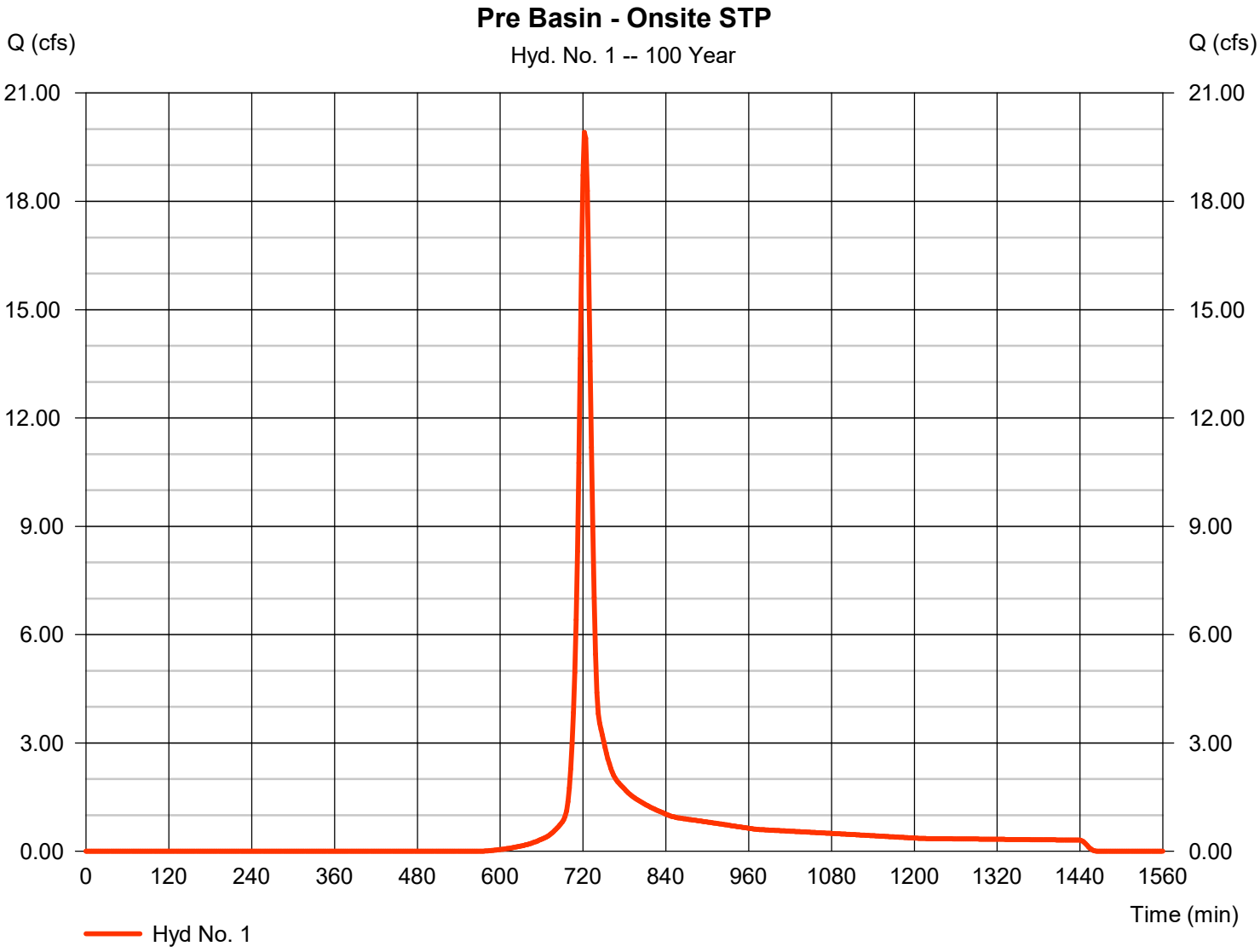
Hydrograph Report

Hyd. No. 1

Pre Basin - Onsite STP

Hydrograph type	=	SCS Runoff	Peak discharge	=	19.91 cfs
Storm frequency	=	100 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	56,372 cuft
Drainage area	=	5.020 ac	Curve number	=	63*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	14.00 min
Total precip.	=	7.36 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(3.290 x 55) + (1.730 x 77)] / 5.020



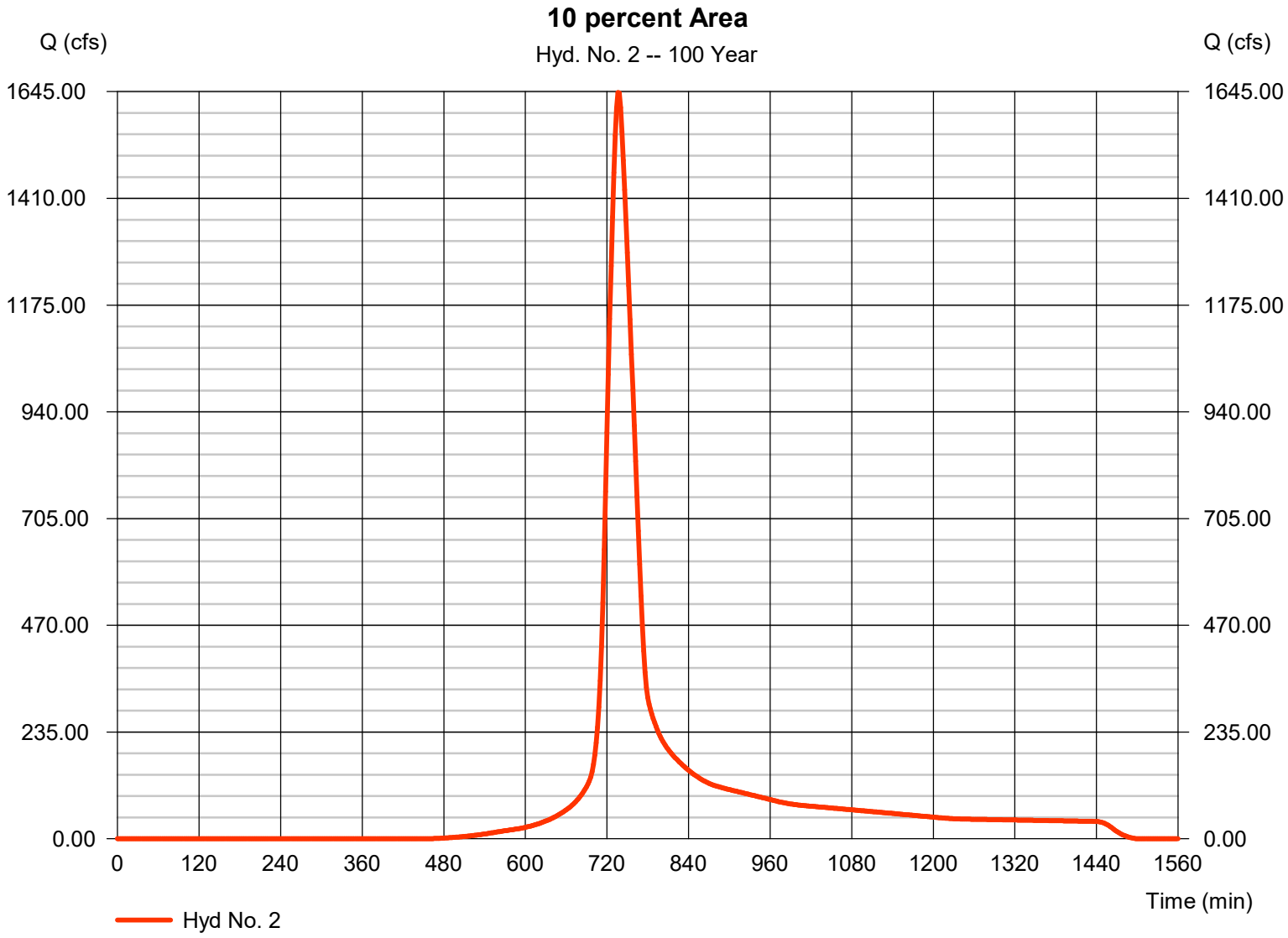
Hydrograph Report

Hyd. No. 2

10 percent Area

Hydrograph type	=	SCS Runoff	Peak discharge	=	1642.95 cfs
Storm frequency	=	100 yrs	Time to peak	=	736 min
Time interval	=	2 min	Hyd. volume	=	7,975,411 cuft
Drainage area	=	531.000 ac	Curve number	=	72*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	38.00 min
Total precip.	=	7.36 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(60.000 x 55) + (20.000 x 77) + (250.500 x 61) + (83.500 x 80) + (117.000 x 98)] / 531.000



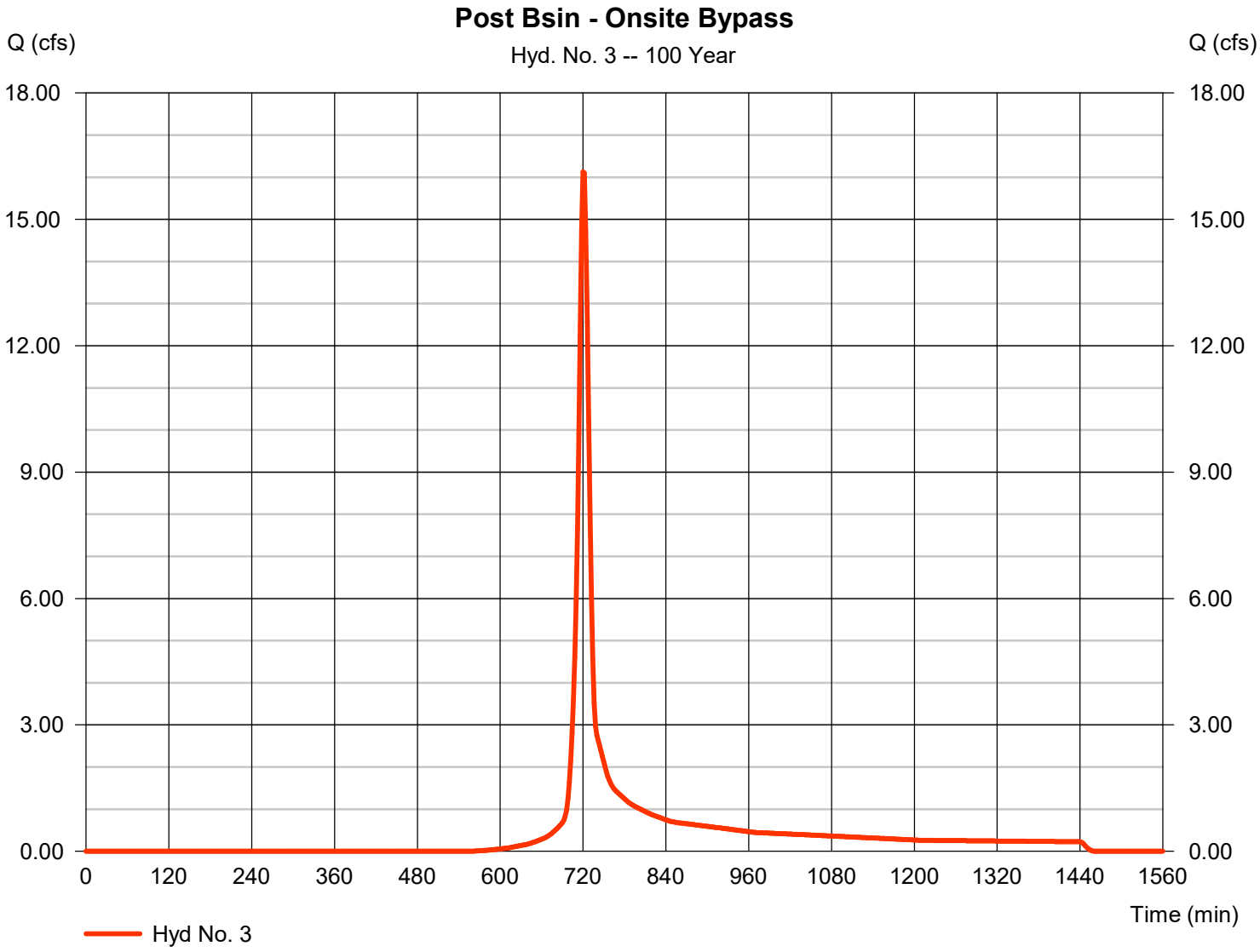
Hydrograph Report

Hyd. No. 3

Post Bsin - Onsite Bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	16.13 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	2 min	Hyd. volume	=	42,087 cuft
Drainage area	=	3.430 ac	Curve number	=	64*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	10.00 min
Total precip.	=	7.36 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.910 x 55) + (1.740 x 77) + (0.570 x 61) + (0.010 x 98)] / 3.430



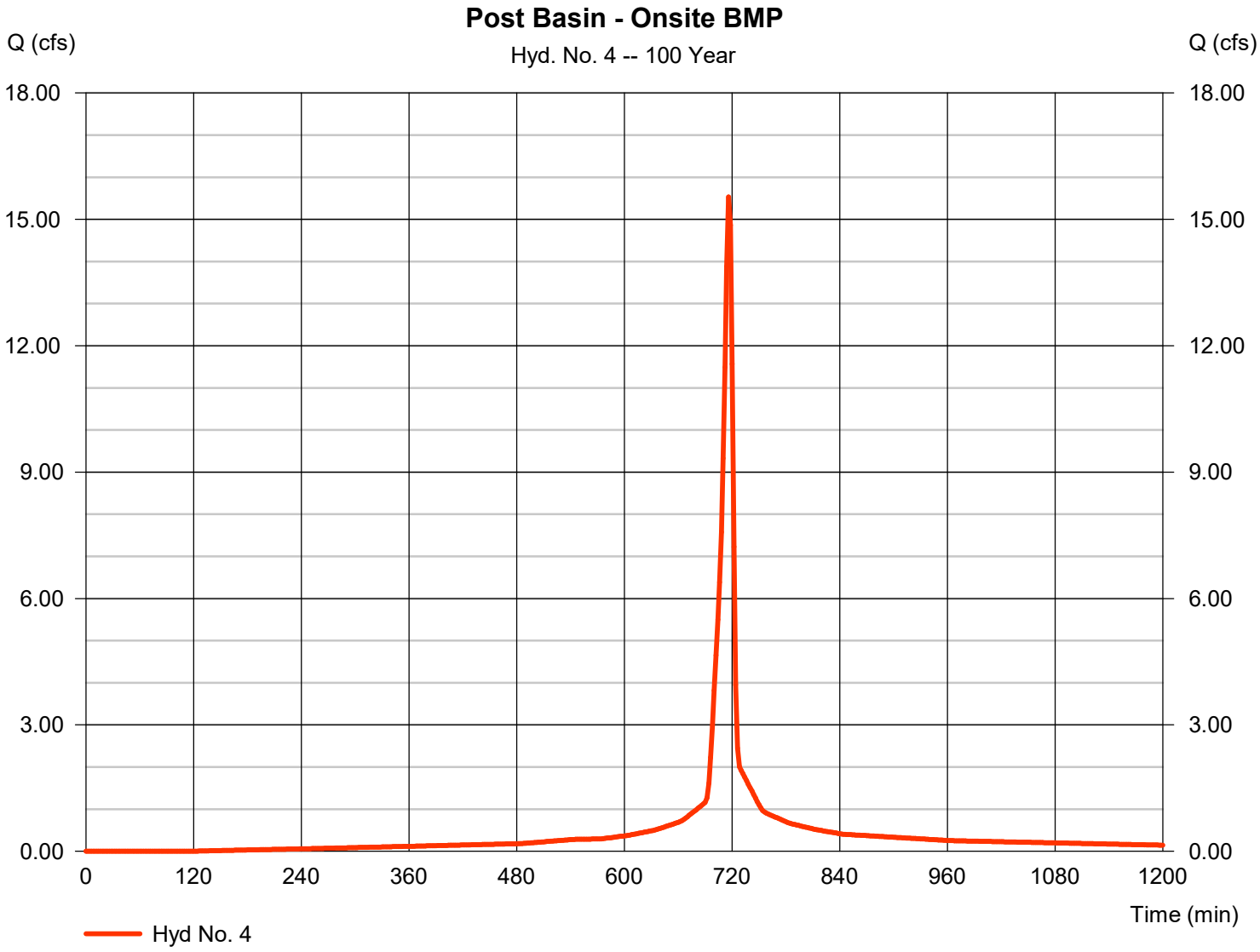
Hydrograph Report

Hyd. No. 4

Post Basin - Onsite BMP

Hydrograph type	=	SCS Runoff	Peak discharge	=	15.53 cfs
Storm frequency	=	100 yrs	Time to peak	=	716 min
Time interval	=	2 min	Hyd. volume	=	35,322 cuft
Drainage area	=	1.590 ac	Curve number	=	93*
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	7.36 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

* Composite (Area/CN) = [(0.230 x 61) + (1.360 x 98)] / 1.590



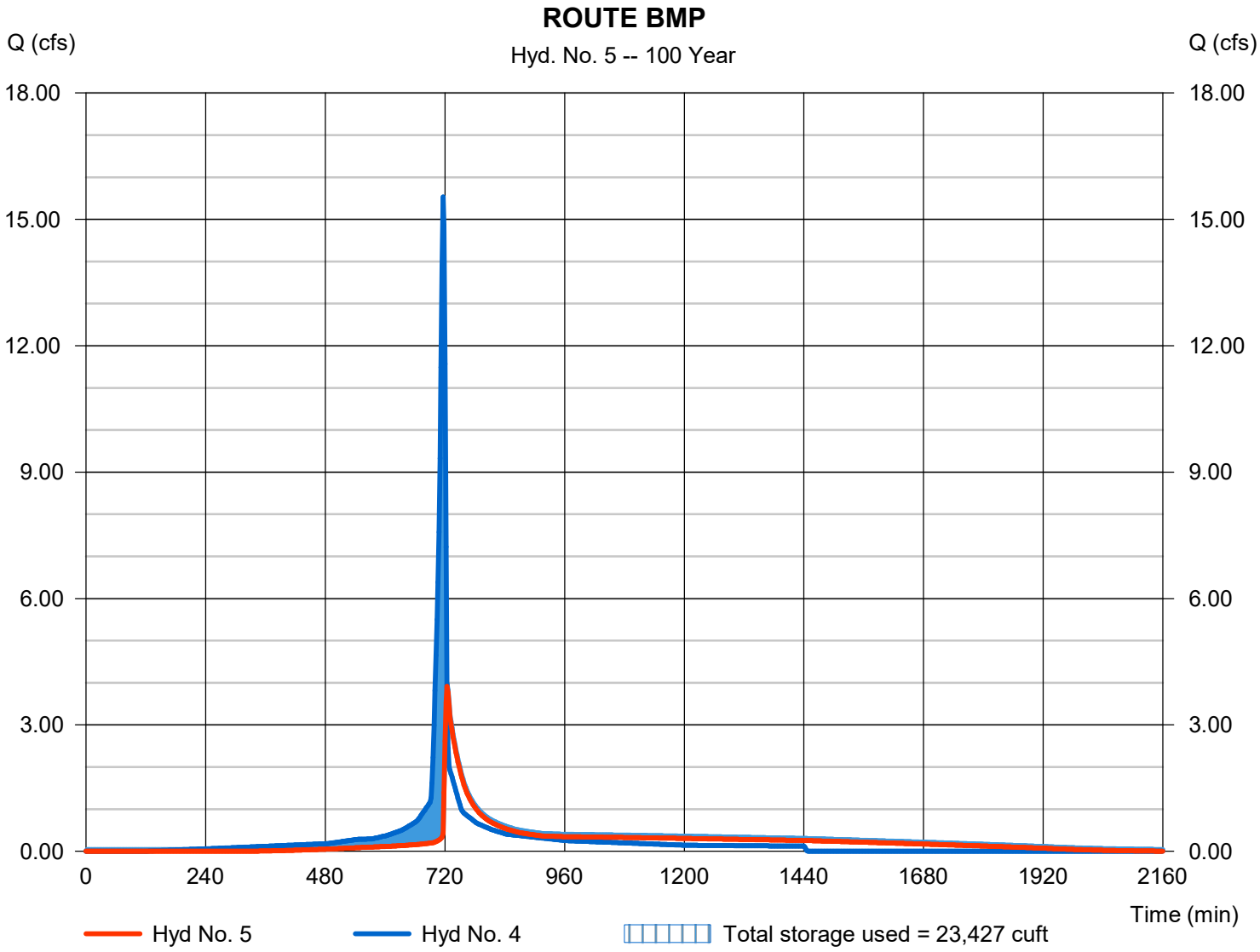
Hydrograph Report

Hyd. No. 5

ROUTE BMP

Hydrograph type	=	Reservoir	Peak discharge	=	3.913 cfs
Storm frequency	=	100 yrs	Time to peak	=	724 min
Time interval	=	2 min	Hyd. volume	=	29,531 cuft
Inflow hyd. No.	=	4 - Post Basin - Onsite BMP	Max. Elevation	=	1026.93 ft
Reservoir name	=	UGS - 48 inch	Max. Storage	=	23,427 cuft

Storage Indication method used. Wet pond routing start elevation = 1023.68 ft. Exfiltration extracted from Outflow.

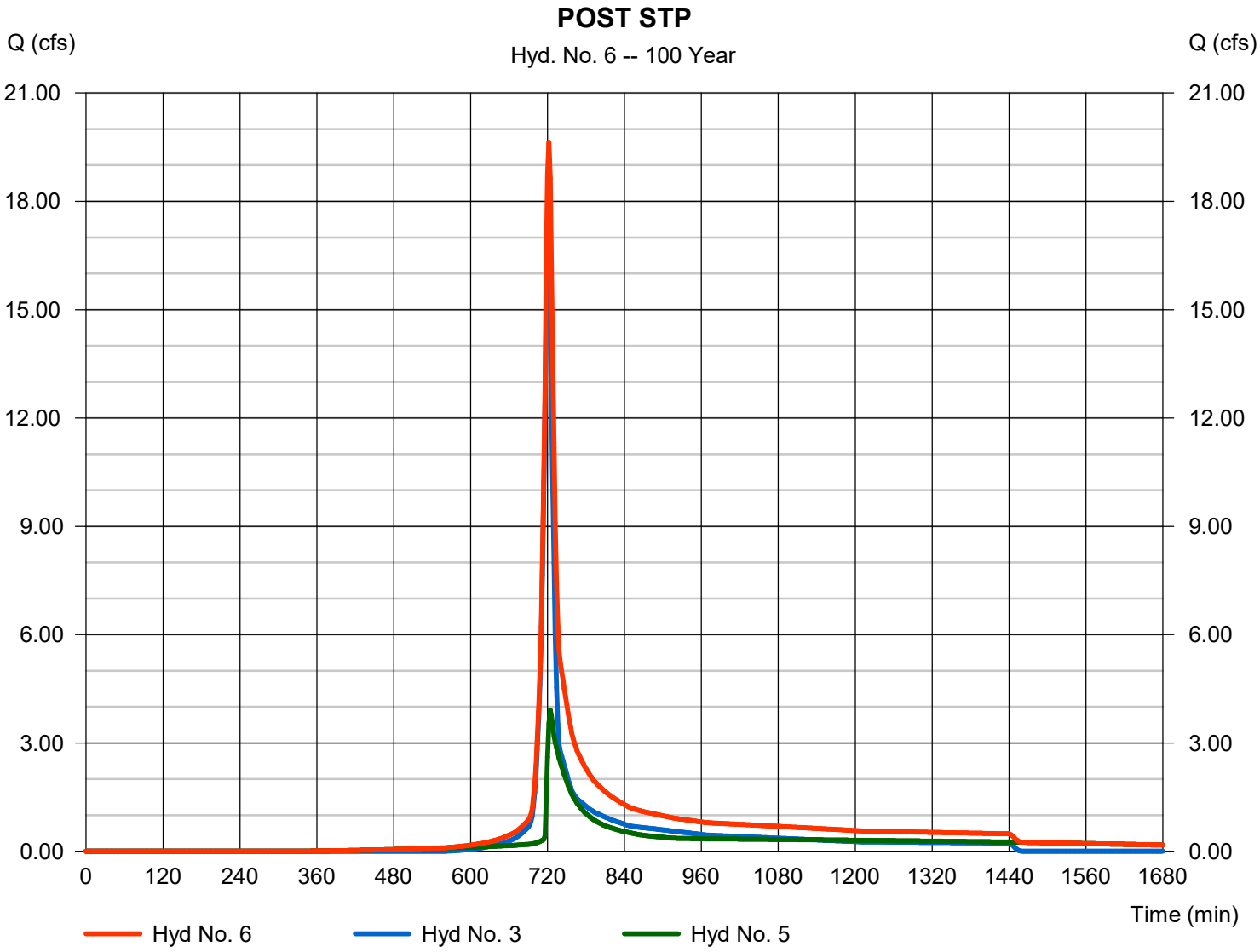


Hydrograph Report

Hyd. No. 6

POST STP

Hydrograph type	=	Combine	Peak discharge	=	19.63 cfs
Storm frequency	=	100 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	71,619 cuft
Inflow hyds.	=	3, 5	Contrib. drain. area	=	3.430 ac

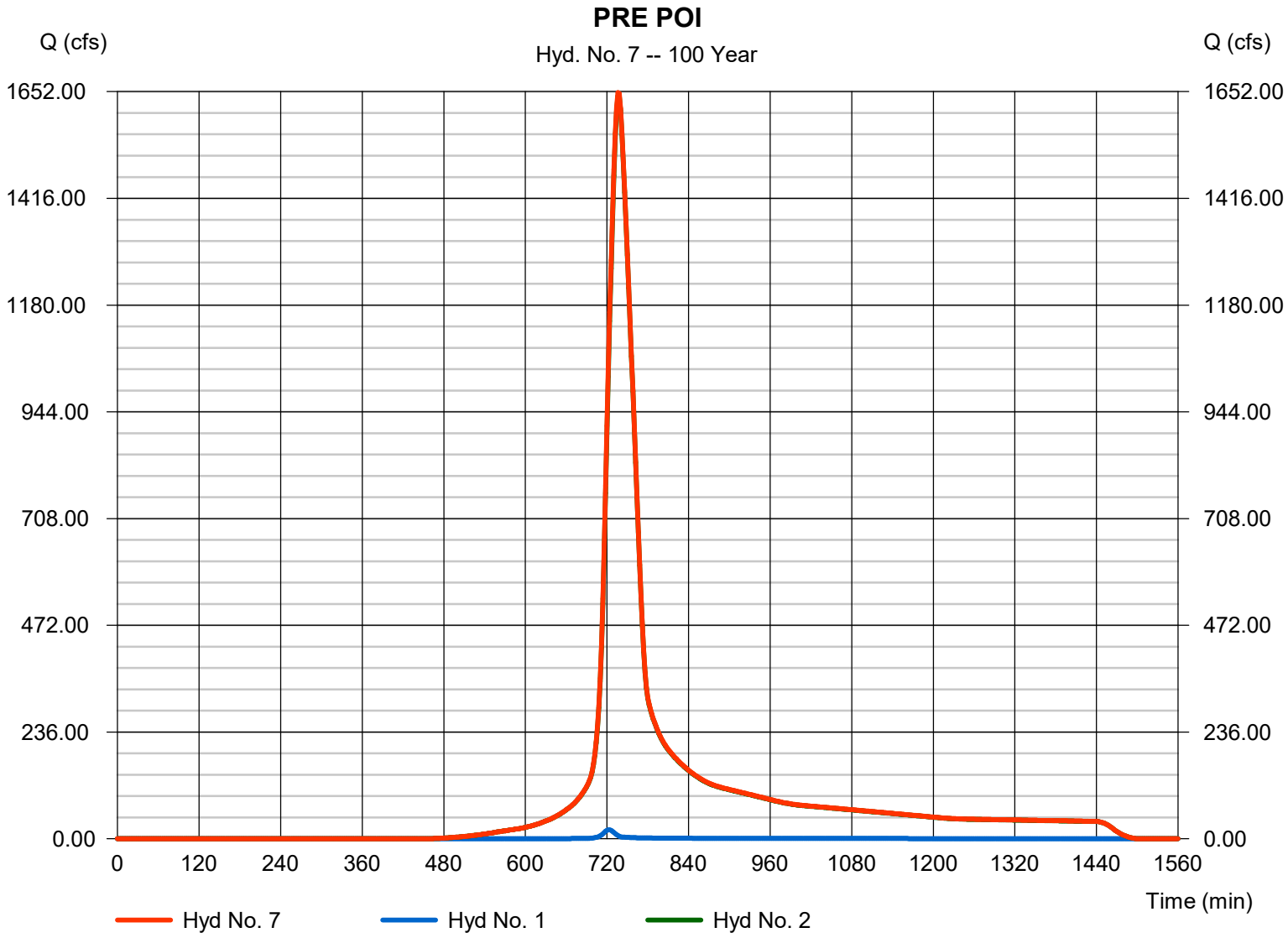


Hydrograph Report

Hyd. No. 7

PRE POI

Hydrograph type	=	Combine	Peak discharge	=	1649.98 cfs
Storm frequency	=	100 yrs	Time to peak	=	736 min
Time interval	=	2 min	Hyd. volume	=	8,031,786 cuft
Inflow hyds.	=	1, 2	Contrib. drain. area	=	536.020 ac

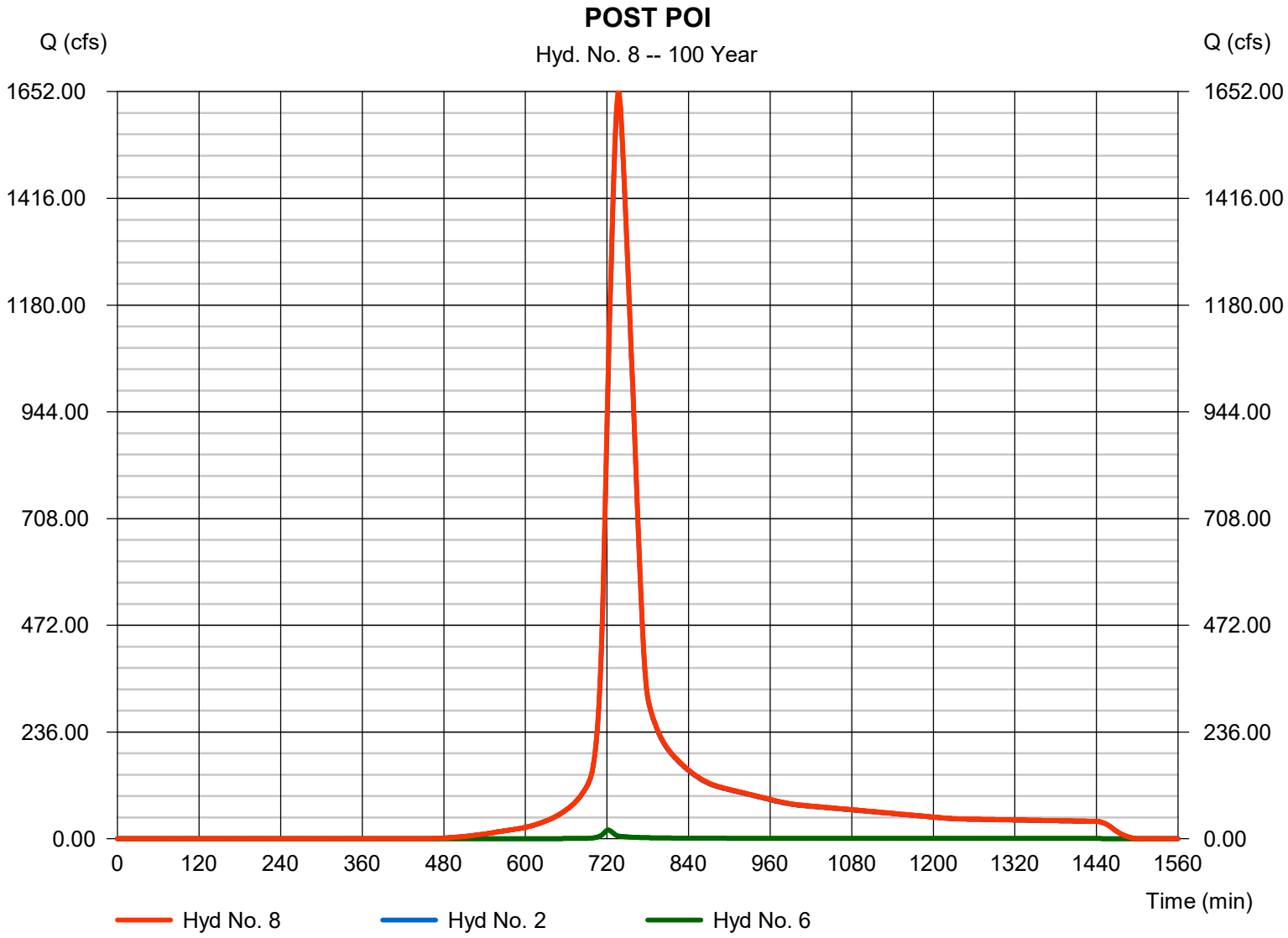


Hydrograph Report

Hyd. No. 8

POST POI

Hydrograph type	= Combine	Peak discharge	= 1649.18 cfs
Storm frequency	= 100 yrs	Time to peak	= 736 min
Time interval	= 2 min	Hyd. volume	= 8,047,032 cuft
Inflow hyds.	= 2, 6	Contrib. drain. area	= 531.000 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	29.2707	6.3000	0.7389	--------
2	36.2940	6.7000	0.7586	--------
3	0.0000	0.0000	0.0000	--------
5	42.3156	6.4000	0.7486	--------
10	51.0825	6.7000	0.7587	--------
25	57.6119	6.3000	0.7461	--------
50	65.4349	6.3000	0.7472	--------
100	68.9982	6.0000	0.7330	--------

File name: 21-220032 DALRYMPLE ROAD.IDF

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	4.88	3.72	3.05	2.61	2.30	2.06	1.87	1.72	1.60	1.49	1.40	1.32
2	5.62	4.29	3.52	3.00	2.64	2.36	2.14	1.97	1.82	1.70	1.59	1.50
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.84	5.21	4.27	3.65	3.21	2.87	2.61	2.39	2.22	2.07	1.94	1.83
10	7.90	6.03	4.95	4.23	3.71	3.32	3.01	2.77	2.56	2.39	2.24	2.11
25	9.44	7.18	5.88	5.02	4.41	3.95	3.59	3.29	3.05	2.85	2.67	2.52
50	10.69	8.13	6.66	5.69	4.99	4.47	4.06	3.73	3.45	3.22	3.02	2.85
100	11.90	9.04	7.41	6.33	5.57	4.99	4.54	4.17	3.87	3.61	3.39	3.20

Tc = time in minutes. Values may exceed 60.

Precip. file name: Z:\24-220008 Bethany Bend\7 - Engineering\Hydrology\Milton Precip Depth.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	3.33	3.77	0.00	4.50	5.11	5.98	6.66	7.36
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

APPENDIX 6

BOUNDARY AND TOPOGRAPHIC SURVEY

LEGEND

- PROPERTY LINE
- LAND LOT LINE
- CMF CONCRETE MONUMENT FOUND
- IPS IRON PIN SET
- IPF IRON PIN FOUND
- CTP CRIMPED-TOP PIPE
- OTP OPEN-TOP PIPE
- R/W RIGHT OF WAY
- POB POINT OF BEGINNING
- BUILDING SETBACK LINE
- ℄ CENTERLINE
- CI CURB INLET
- DI DROP INLET
- YI YARD INLET
- DWCB DOUBLE-WING CATCH BASIN
- SWCB SINGLE-WING CATCH BASIN
- HW HEADWALL
- JB JUNCTION BOX
- SD SD SD STORM DRAINAGE PIPE
- CMP CORRUGATED METAL PIPE
- CPP CORRUGATED PLASTIC PIPE
- RCP REINFORCED CONCRETE PIPE
- INV INVERT ELEVATION
- SS SANITARY SEWER LINE
- SSMH SANITARY SEWER MANHOLE
- SCO SEWER CLEANOUT
- GT GREASE TRAP
- DIP DUCTILE IRON PIPE
- PVC POLYVINYL CHLORIDE PIPE
- POWER POLE
- LIGHT POLE
- E POWER (TRANSFORMER) BOX
- GUY WIRE
- PM POWER METER
- POWER MANHOLE
- OHP OVERHEAD POWER LINE
- UGE UNDERGROUND POWER LINE
- T TELEPHONE MANHOLE
- TP TELEPHONE PEDESTAL
- UT UNDERGROUND TELEPHONE LINE
- TV TELEVISION (CABLE) LINE
- TVC TELEVISION PEDESTAL
- TB TRAFFIC CONTROL BOX
- G GAS LINE
- GM GAS METER
- GV GAS VALVE
- FH FIRE HYDRANT
- WV WATER VALVE
- M WATER METER
- FDC FIRE DEPARTMENT CONNECTION
- IRRIGATION CONTROL VALVE
- W WATER LINE
- TREE LINE
- TREE
- MW MONITORING WELL
- BUILDING (FINISHED)
- GUARD RAIL
- RAILROAD TRACKS
- FENCE LINE
- CONTOUR
- INDEX CONTOUR
- SPOT ELEVATION
- FFE FINISHED FLOOR ELEVATION
- CENTERLINE OF STREAM
- FLOOD LIMITS
- CONCRETE

WATER FEATURE PHOTOGRAPHS

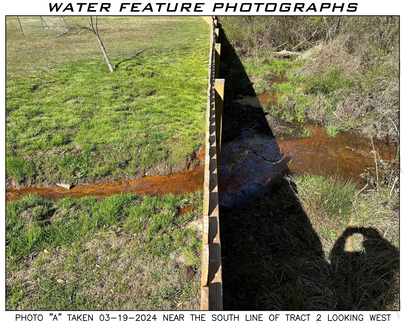


PHOTO "A" TAKEN 03-19-2024 NEAR THE SOUTH LINE OF TRACT 2 LOOKING WEST

PHOTO "B" TAKEN 03-19-2024 NEAR THE SOUTH LINE OF TRACT 2 LOOKING WEST SOUTHWEST

LINE	BEARING	DISTANCE
L1	N 42°52'37" W	25.62'
L2	N 23°26'58" W	36.47'
L3	N 46°43'59" W	50.91'
L4	N 81°38'12" W	28.09'
L5	S 89°00'21" W	19.75'
L6	N 27°30'40" W	31.05'
L7	N 24°34'03" W	31.27'
L8	N 46°27'19" W	62.96'

THE RECORD DESCRIPTION CALLS FOR 183.46' ALONG THIS LINE OF THE PROPERTY. OLDER DEEDS FOR THE PROPERTY AND THE ADJOINING SUBDIVISION PLAT CALL FOR 162'.

N/F HIDDEN FOREST SUBDIVISION P.B. 329, PG. 71 — COMMON AREA

N/F HIDDEN FOREST SUBDIVISION P.B. 329, PG. 71

N/F SAPIENT MINDS LLC D.B. 67450, PG. 465 TAX ID 21 5470097202 40

TRACT 1 98,142.7 SQ. FT. 2.253 ACRES

TRACT 2 120,579.7 SQ. FT. 2.768 ACRES

N/F HIDDEN FOREST SUBDIVISION P.B. 329, PG. 71

N/F SAPIENT MINDS LLC D.B. 67450, PG. 465 TAX ID 21 5470097201 58

N/F HIDDEN FOREST SUBDIVISION P.B. 329, PG. 71

N/F WISDARIUM LLC D.B. 46325, PG. 412 TAX ID 21 5470097303 30

EPHEMERAL STREAM OR MAN-MADE DITCH. NO BASE FLOW, STREAM BANK, OR WRESTED VEGETATION PRESENT.

FLAMINGO ROAD 44' PRIVATE R/W

BETHANY BEND (60' PUBLIC R/W)

FLOOD ZONE "X SHADED" — FLOOD LIMITS

75' IMPERVIOUS SETBACK — 50' STREAM BUFFER — 25' STREAM BUFFER

℄ OF CREEK IS ℄

20' SEWER EASEMENT — SS — 8" PVC

SSMH TOP=1021.48 INV OUT=1016.36

SSMH TOP=1018.68 INV OUT=1014.98

CI TOP=1043.96 GRATE=1043.51 INV OUT=1036.44

SWCB TOP=1041.85 INV=1032.69

SWCB TOP=1041.02 INV IN(NE)=1033.63 INV IN(NW)=1031.44 INV OUT(S)=1031.06

SWCB TOP=1037.28 INV=1029.47

SWCB TOP=1032.00 INV=1026.33

BENCHMARK CAPPED REBAR N=149,3918.925 E=2270017.267 Z=1045.99

BENCHMARK 60d NAIL N=149,3550.512 E=2270073.992 Z=1035.82

GUY WIRE 3.5' OUTSIDE R/W

1-STORY FRAME BUILDING

PHOTOGRAPH LOCATION

POB TRACT 1

POB TRACT 2

POC IPF 1" SQUARE ROD

APPROXIMATE LAND LOT LINE

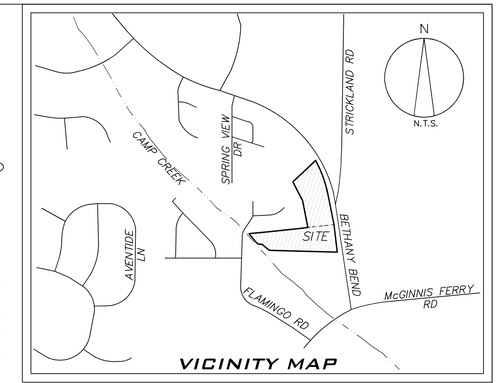
LL 972 / LL 971 / LL 973 / LL 974

TREE CHART		
ID #	DIA.	TYPE
T1	41"	OAK
T2	25"	PINE
T3	39"	OAK
T4	44"	OAK
T5	37"	DOUBLE OAK
T6	39"	OAK
T7	39"	PINE
T8	24"	OAK
T9	28"	OAK
T10	39"	OAK
T11	21"	PINE
T12	25"	PINE
T13	25"	PINE
T14	20"	PINE
T15	23"	PINE
T16	27"	PINE
T17	21"	PINE
T18	25"	PINE
T19	39"	HARDWOOD
T20	29"	PINE
T21	18"	PINE
T22	45"	OAK
T23	26"	PINE
T24	27"	PINE
T25	32"	PINE
T26	20"	PINE
T27	21"	OAK
T28	18"	OAK
T29	28"	PINE
T30	18"	OAK
T31	20"	OAK
T32	19"	PINE
T33	26"	OAK
T34	20"	OAK
T35	20"	OAK
T36	20"	PINE
T37	29"	PINE
T38	19"	PINE
T39	18"	SWEETGUM
T40	26"	PINE
T41	22"	PINE
T42	26"	OAK
T43	30"	DOUBLE OAK
T44	19"	OAK
T45	18"	PINE
T46	18"	PINE
T47	18"	PINE
T48	18"	PINE
T49	20"	PINE
T50	19"	PINE
T51	21"	PINE
T52	21"	PINE
T53	26"	PINE
T54	18"	OAK
T55	18"	OAK
T56	19"	PINE
T57	23"	PINE
T58	22"	PINE
T59	41"	TRIPLE OAK
T60	20"	PINE
T61	19"	PINE
T62	18"	PINE
T63	18"	PINE
T64	14"	DOGWOOD
T65	31"	OAK
T66	35"	OAK
T67	18"	OAK
T68	24"	OAK
T69	33"	OAK
T70	21"	PINE
T71	19"	POPLAR
T72	33"	OAK
T73	27"	HARDWOOD
T74	18"	OAK
T75	22"	SWEETGUM
T76	21"	SWEETGUM
T77	21"	SWEETGUM
T78	36"	TRIPLE OAK
T79	22"	POPLAR
T80	19"	POPLAR
T81	27"	HARDWOOD
T82	36"	TRIPLE OAK
T83	19"	HARDWOOD
T84	26"	PINE
T85	28"	DOUBLE POPLAR
T86	20"	DOUBLE POPLAR
T87	21"	PINE
T88	27"	PINE
T89	36"	PINE
T90	24"	PINE
T91	33"	PINE
T92	32"	PINE
T93	30"	PINE
T94	28"	PINE
T95	18"	HARDWOOD
T96	26"	POPLAR
T97	24"	HARDWOOD
T98	20"	POPLAR
T99	19"	POPLAR
T100	27"	POPLAR
T101	24"	POPLAR
T102	29"	HARDWOOD
T103	23"	HARDWOOD
T104	28"	DOUBLE HARDWOOD
T105	27"	HARDWOOD
T106	20"	POPLAR
T107	24"	POPLAR
T108	25"	POPLAR
T109	29"	OAK
T110	19"	HARDWOOD
T111	21"	HARDWOOD
T112	24"	DOUBLE OAK
T113	34"	TRIPLE OAK
T114	23"	OAK
T115	20"	HARDWOOD
T116	36"	OAK
T117	26"	OAK
T118	24"	OAK
T119	23"	OAK
T120	27"	OAK
T121	23"	OAK
T122	28"	PINE
T123	18"	HARDWOOD
T124	38"	PINE
T125	24"	POPLAR
T126	19"	POPLAR
T127	24"	POPLAR
T128	21"	OAK
T129	39"	POPLAR
T130	18"	POPLAR
T131	20"	POPLAR
T132	31"	POPLAR
T133	23"	SWEETGUM
T134	20"	POPLAR
T135	18"	POPLAR

0' 40' 80' 120'

REVISION	DATE	PURPOSE
1	03-25-24	ADD DATA ON TAX ID 21 5470097303 30

GRID 6A-WEST ZONE



VICINITY MAP

SURVEY NOTES

1. THIS SURVEY WAS PREPARED IN CONFORMITY WITH THE TECHNICAL STANDARDS FOR PROPERTY SURVEYS IN GEORGIA AS SET FORTH IN CHAPTER 180-7 OF THE RULES OF THE GEORGIA BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS AND AS SET FORTH IN THE GEORGIA PLAT ACT O.C.G.A. 15-6-67.

2. THIS PLAT WAS PREPARED FROM A FIELD SURVEY USING A ONE SECOND TRIMBLE ROBOTIC TOTAL STATION.

3. ALL IPF & IPS ARE ½" REBAR UNLESS NOTED OTHERWISE.

4. INFORMATION REGARDING THE PRESENCE, SIZE AND LOCATION OF UNDERGROUND UTILITIES SHOWN HEREON IS BASED ON THE LOCATION OF VISIBLE APPURTENANCES AND ON FLAGS AND/OR PAINT PLACED BY OTHERS. NO CERTIFICATION IS MADE AS TO THE ACCURACY OR THOROUGHNESS OF THE INFORMATION CONCERNING UNDERGROUND UTILITIES SHOWN HEREON, PER GEORGIA LAW.

5. DISTANCES SHOWN HEREON ARE HORIZONTAL GROUND DIMENSIONS.

6. SURVEYORS CERTIFICATION HEREON EXTENDS ONLY TO THE TOPOGRAPHIC (ELEVATION) DATA. ADDITIONAL ITEMS SHOWN HEREON ARE FOR INFORMATION ONLY. SEE SURVEY REFERENCE #1 FOR ADDITIONAL CERTIFICATIONS.

SURVEY DATA

1. THE PRECISION OF THE FIELD DATA UPON WHICH THIS SURVEY IS BASED WAS VERIFIED WITH REDUNDANT LINEAR MEASUREMENTS. THE CALCULATED POSITIONAL TOLERANCE IS LESS THAN 0.07' PER POINT. THE FIELD DATA HAS BEEN ADJUSTED USING LEAST SQUARES.

2. THE BEARINGS SHOWN HEREON ARE BASED ON ANGLES TURNED AND ARE REFERENCED TO GRID NORTH VIA RTN GPS OBSERVATIONS.
HORIZONTAL DATUM: NAD83/GEORGIA WEST ZONE

3. THE TOPOGRAPHY SHOWN HEREON WAS PRODUCED FROM A GROUND SURVEY.
CONTOUR INTERVAL: 1 FOOT.
VERTICAL DATUM: NAVD88 VIA RTN GPS OBSERVATIONS.
2 FOOT CONTOUR INTERVAL TOPOGRAPHIC DATA SHOWN OUTSIDE OF THE SUBJECT TRACTS WAS GENERATED FROM U.S.GEOLOGICAL SURVEY LIDAR DATA COLLECTED IN 2018.

4. THIS PLAT HAS BEEN CALCULATED FOR CLOSURE AND FOUND TO BE ACCURATE AS FOLLOWS:
TRACT 1 – ONE FOOT IN 244,268 FEET.
TRACT 2 – ONE FOOT IN 119,744 FEET.

5. NO PORTION OF THIS PROPERTY LIES WITHIN A SPECIAL FLOOD HAZARD AREA ACCORDING TO FEMA FLOOD INSURANCE RATE MAP NUMBER 13121C0057G, EFFECTIVE DATE OF JUNE 19, 2020. A PORTION OF THE SITE LIES WITHIN AN "OTHER AREA OF FLOOD HAZARD" DESIGNATED AS ZONE "X SHADED" BEING AN AREA OF 0.2% ANNUAL CHANCE FLOOD HAZARD OR AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTH LESS THAN ONE FOOT OR DRAINAGE AREAS OF LESS THAN ONE SQUARE MILE.

NOTES

1. THE PROPERTY SHOWN HEREON IS THE SAME PROPERTY DESCRIBED IN THAT CERTAIN COMMITMENT FOR TITLE INSURANCE PREPARED BY WESTCOR LAND TITLE INSURANCE COMPANY, COMMITMENT NUMBER 23-0154, DATED OCTOBER 11, 2023.

2. THERE IS NO VISIBLE EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION, OR BUILDING ADDITIONS ON THIS SITE.

3. PROPERTY ADDRESSES:
TRACT 1 – 3499 BETHANY BEND, MILTON, GA
TRACT 2 – 3501 BETHANY BEND, MILTON, GA

4. THE RECORD DESCRIPTION OF TRACT 1 DOES NOT FORM A MATHEMATICALLY CLOSED FIGURE.

5. WHERE TITLE LINES ARE DEFINED BY A BODY OF WATER, THE BOUNDARY IS SUBJECT TO CHANGE DUE TO NATURAL CAUSES. SAID BOUNDARY LINE MAY OR MAY NOT REPRESENT THE ACTUAL LOCATION OF THE LIMIT OF TITLE.

6. THE SUBJECT PARCELS ARE CONTIGUOUS WITH NO GAPS, GORES OR OVERLAPS BETWEEN SAID PARCELS.

SURVEY REFERENCE

1. ALTA/NSPS LAND TITLE SURVEY FOR SAPIENT MINDS, LLC, DATED DECEMBER 13, 2023, PREPARED BY LANDPRO SURVEYING & MAPPING, INC.

SURVEYOR'S CERTIFICATION

I CERTIFY THAT THIS PLAT IS A TRUE REPRESENTATION THAT IS BASED ON AN ACTUAL SURVEY MADE ON THE GROUND UNDER MY SUPERVISION.

GEORGIA REGISTERED No. 3033 LAND SURVEYOR JAMES H. RADER

JAMES H RADER GEORGIA RLS# 3033

LANDPRO
SURVEYING AND MAPPING
305 CREEKSTONE RIDGE
WOODSTOCK, GA 30188
TELE: 404-386-2170
AUTHORIZATION NO. LSF000838
WWW.LANDPROSURVEYING.COM
INFO@LANDPROSURVEYING.COM

TOPOGRAPHIC SURVEY FOR
SAPIENT MINDS, LLC
CURRENT OWNER: SAPIENT MINDS LLC
LAND LOT 971 & 972, DISTRICT 2, SECTION 1
CITY OF MILTON, FULTON COUNTY, GA

SCALE	DATE	PROJECT NO.	SHEET
1" = 40'	01/16/24	20240116	1 OF 1